



Public Input No. 640-NFPA 70-2026 [Global Input]

Type your content here ...

Industrial facilities

Industrial buildings

Industrial establishments

Industrial premises

Industrial Occupancies

For consistency and clarity, consolidate all the terms above into Industrial Occupancy

Statement of Problem and Substantiation for Public Input

Installation standards generally refer to and align with the performance-based requirements provided in consensus-based building and life safety codes. Industrial occupancy is a term use to classify the use of the building, establishment, premises, or facility. Consolidating to one terminology would solidify the use of the terms meaning, and aligns with outer codes and standards, Industrial Occupancy.

Submitter Information Verification

Submitter Full Name: Alfio Torrisi

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Submittal Date: Mon Jan 19 11:36:19 EST 2026

Committee: NEC-P01

Copyright Assignment

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Public Input No. 1005-NFPA 70-2026 [Global Input]

Delete the words, "to be installed" everywhere they appear in the First Draft.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
PC_649_CMP_1.pdf	70_PC649	✓

Statement of Problem and Substantiation for Public Input

NOTE: This Public Input appeared as "Reject but Hold" in Public Comment No. 649 of the (A2025) Second Draft Report for NFPA 70 and per the Regs. at 4.4.8.3.1 and needs to be reconsidered by the Code-Making Panel for the next edition of the document.

The term "to be installed" is always redundant. 90.2(C) says, "This code covers the installation and removal of electrical conductors, equipment, and raceways...". Every requirement of the NEC is about installation or removal (and requirements about removal are a very small minority). "Shall be permitted" and "shall not be permitted," as applied to equipment, mean that the subject equipment either is or is not allowed to be installed.

The new First Draft restrictions on reconditioned equipment seem to have overlooked the scope and purpose of the NEC. Adding the superfluous term "to be installed" also does not conform to 3.1.1, 3.1.2, and 3.5.1.1 of the NEC Style Manual.

Submitter Information Verification

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Submission Date: Wed Feb 11 12:23:38 EST 2026

Committee: NEC-P01

Copyright Assignment

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Public Input No. 1094-NFPA 70-2026 [Global Input]

The .3 sections of each Article are not consistent. Some articles have an "A" while others do not. Some Articles that do have an "A" that only reference the "B" section. This PI is a suggestion to format each of the Articles the same.

Example:

424.3(A) Permitted to be Installed.

Reconditioned equipment shall be permitted to be installed, except as indicated in 424.3(B).

424.3(B) Not Permitted to be Installed.

Reconditioned electric space-heating cables shall not be permitted to be installed.

Statement of Problem and Substantiation for Public Input

The formatting of the recondition section of each article is inconsistent. this PI is a suggestion to format the recondition section for each section the same.

Submitter Information Verification

Submitter Full Name: Dennis Query

Organization: Trinity River Authority of Tex

Affiliation: IEC

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Submittal Date: Thu Feb 19 14:18:59 EST 2026

Committee: NEC-P02

Copyright Assignment

I, Dennis Query, hereby irrevocably grant and assign to the National Fire Protection Association (NFPA) all and full rights in copyright in this Public Input (including both the Proposed Change and the Statement of Problem and Substantiation). I understand and intend that I acquire no rights, including rights as a joint author, in any publication of the NFPA in which this Public Input in this or another similar or derivative form is used. I hereby warrant that I am the author of this Public Input and that I have full power and authority to enter into this copyright assignment.

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Public Input No. 2360-NFPA 70-2026 [Global Input]

Change “portable generator” to portable power source” throughout the code.

Statement of Problem and Substantiation for Public Input

The existing requirements in Articles 250, 590, 700, and 702 only cover portable generator use, however the use of portable power packs, EVs, trailer mounted ESS and hydrogen fuel cells are seeing increased usage for applications where portable generators are used. The term portable power source is more inclusive to include these newer portable power sources.

Submitter Information Verification

Submitter Full Name: Dean Hunter

Organization: Minnesota Department of Labor

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Submittal Date: Thu Apr 02 11:05:29 EDT 2026

Committee: NEC-P13

Copyright Assignment

I, Dean Hunter, hereby irrevocably grant and assign to the National Fire Protection Association (NFPA) all and full rights in copyright in this Public Input (including both the Proposed Change and the Statement of Problem and Substantiation). I understand and intend that I acquire no rights, including rights as a joint author, in any publication of the NFPA in which this Public Input in this or another similar or derivative form is used. I hereby warrant that I am the author of this Public Input and that I have full power and authority to enter into this copyright assignment.

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Public Input No. 2633-NFPA 70-2026 [Global Input]

As the NEC has taken major steps in evolving relative to a completely new structure and organization, It has become more complex and repetitive, violating the NEC Style Manual and introducing confusion in many respects. The concepts in 90.3 that assist users in understanding the NEC and applying it, are being dismantled. Significant changes in the development and long-term evolution of the NEC are necessary for the industry, NFPA, and the future users of the document.

This global Public Input suggests that The NEC be divided into two Codes, NFPA 70-National Electrical Code Part 1 (for everything 1000 volts and less and 1500 volts dc), and NFPA 70-National Electrical Code Part 2 (everything over 1000 volts, 1500 volts dc).

This suggested change actually will expand the NEC and allow for the anticipated growth of both parts in the future. It also establishes a new Code into the NFPA library of Codes and Standards. The suggested Global Input and associated development work could be a planned migration over a cycle or two if needed.

Much of this work has already been started with the separation of the low voltage (1000 volts and less) from the medium and high voltage (over 1000 volts) requirements. So separating those requirements and definition and so forth into two documents makes sense long term.

This would also allow the original 90.3 to maintain its validity and use as it has enjoyed since the 1937 edition. This change would also allow for the integration of and correlation with the voltage classifications into the NEC to be consistent with the existing voltage classification structure in ANSI C 84.

This revision would also be less burdensome for many organizations that use the current NEC structure for licensing and certification exams, NEC-based training, contractor project management and estimation software, apprenticeship training programs and so forth. It could also ease and streamline the adoption processes across North American states that adopt the NEC legally for use by enforcing jurisdictions.

Statement of Problem and Substantiation for Public Input

The NEC is expanding and being reorganized into a large and much more complex document that is getting harder for users. Separating the 1000 volt rules from the over 1000 volt rules makes sense and seems to be a logical solution for those involved in its evolution, especially the NFPA.

Much of this work has already been started with the separation of the low voltage (1000 volts and less) from the medium and high voltage (over 1000 volts) requirements. So separating those requirements and definition and so forth into two documents makes sense long term.

This would also allow the original 90.3 to maintain its validity and use as it has enjoyed since the 1937 edition. This change would also allow for the integration of and correlation with the voltage classifications into the NEC to be consistent with the existing voltage classification structure in ANSI C 84.

This revision would also be less burdensome for many organizations that use the current NEC structure for licensing and certification exams, NEC-based training, contractor project management and estimation software, apprenticeship training programs and so forth. It could also ease and streamline the adoption processes across North American states that adopt the NEC legally for use by enforcing jurisdictions.

Submitter Information Verification

Submitter Full Name: Michael Johnston

Organization: Roadrunner Technical Services LLC

Affiliation: None

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Submittal Date: Sat Apr 04 06:14:59 EDT 2026

Committee: NEC-P09

Copyright Assignment

I, Michael Johnston, hereby irrevocably grant and assign to the National Fire Protection Association (NFPA) all and full rights in copyright in this Public Input (including both the Proposed Change and the Statement of Problem and Substantiation). I understand and intend that I acquire no rights, including rights as a joint author, in any publication of the NFPA in which this Public Input in this or another similar or derivative form is used. I hereby warrant that I am the author of this Public Input and that I have full power and authority to enter into this copyright assignment.

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Public Input No. 2867-NFPA 70-2026 [Global Input]

This is a companion of PI 2860, which seeks to add Class 5 to article 726

Add "and Class 5" or similar to all instances of the phrase "Class 4" in the code that occur in Chapters 1-6.

Statement of Problem and Substantiation for Public Input

PI 2860 creates a Class 5, substantially similar to Class 4 circuits, with identical safety performance criteria. The new Class 5 designation is required to address applications of Fault Managed Power where the working voltage exceeds that allowed by Class 4 and requires cabling with a higher voltage rating.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 2860-NFPA 70-2026 [Article 726]</u>	companion

Submitter Information Verification

Submitter Full Name: Chad Jones

Organization: Cisco Systems, Inc.

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Submittal Date: Mon Apr 06 16:32:17 EDT 2026

Committee: NEC-P16

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Public Input No. 3276-NFPA 70-2026 [Global Input]

Type your content here ...

- Change the term "normal" to "typical" or "intended" throughout this Standard.
- Change the term "normally" to "typically" throughout this Standard.
- Change the term "abnormal" to "atypical" or "unintended" throughout this Standard.

Statement of Problem and Substantiation for Public Input

The terms "normal", "normally", and "abnormal" can be seen as non-inclusive and less suitable for international use and translation.

1. In common industry usage, function-based terms are widely understood and are more technically descriptive, such as intended and typical.
2. Using the proposed term(s) improves clarity for a broader range of users, including non-specialists, because the term(s) describe the intended function rather than a metaphor.
3. The proposed term(s) align with plain-language writing practices and improve translatability for international audiences.
4. The change supports ULSE's inclusive language goals by replacing terms with neutral, technically descriptive alternatives without changing any technical requirement. Proposals are being made across ULSE's portfolio supporting inclusive language.

Submitter Information Verification

Submitter Full Name: Charles Mercier

Organization: UL Standards & Engagement (ULSE)

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Submittal Date: Wed Apr 08 16:42:07 EDT 2026

Committee: NEC-P01

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Public Input No. 3684-NFPA 70-2026 [Global Input]

Change the term "within sight from", within sight of", within sight" globally to "within sight from" throughout the NEC.

Type your content here ...

Statement of Problem and Substantiation for Public Input

Simplify the wording and make it consistent.

Submitter Information Verification

Submitter Full Name: Paul Dobrowsky

Organization: Innovative Technology Services

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Submittal Date: Thu Apr 09 16:49:05 EDT 2026

Committee: NEC-P01

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206.15 Non-power-limited remote-control and signaling Circuit Wiring Methods.

Non-power-limited remote-control and signaling circuits shall be installed in accordance with Part I of Article [300](#) and with the wiring methods from the appropriate articles in Chapter [3](#).

Exception No. 1:

The provisions of [206.16](#) through 206.18 shall be permitted to apply in installations of non-power-limited remote-control and signaling circuits.

Exception No. 2:

Methods permitted or required by other articles of this Code shall apply to installations of non-power-limited remote-control and signaling circuits.

206.16 Conductors of Different Circuits in the Same Cable, Cable Tray, Enclosure, or Raceway.

Non-power-limited remote-control and signaling circuits shall be permitted to be installed with other circuits as specified in [206.16\(A\)](#) and (B).

(A) Two or More non-power-limited remote-control and signaling Circuits.

Non-power-limited remote-control and signaling circuits shall be permitted to occupy the same cable, cable tray, enclosure, or raceway without regard to whether the individual circuits are alternating current or direct current, provided all conductors are insulated for the maximum voltage of any conductor in the cable, cable tray, enclosure, or raceway.

(B) Non-power-limited remote-control and signaling Circuits with Power-Supply Circuits.

Non-power-limited remote-control and signaling circuits shall be permitted to be installed with power-supply conductors as specified in [206.16\(B\)\(1\)](#) through (B)(4).

(1) In a Cable, Enclosure, or Raceway.

Non-power-limited remote-control and signaling circuits and power-supply circuits shall be permitted to occupy the same cable, enclosure, or raceway without a barrier only where the equipment powered is functionally associated. Non-power-limited remote-control and signaling circuits shall be permitted to be installed together with the conductors of electric light, power, non-power-limited fire alarm, and medium power network-powered broadband communications circuits were separated by a barrier.

(2) In Factory- or Field-Assembled Control Centers.

Non-power-limited remote-control and signaling circuits and power-supply circuits shall be permitted to be installed in factory- or field-assembled control centers.

(3) In a Manhole.

Non-power-limited remote-control and signaling circuits and power-supply circuits shall be permitted to be installed as underground conductors in a manhole in accordance with one of the following:

(1) The power-supply or non-power-limited remote-control and signaling circuit conductors are in a metal-enclosed cable or Type UF cable.

(2) The conductors are permanently separated from the power-supply conductors by a continuous firmly fixed nonconductor, such as flexible tubing, in addition to the insulation on the wire.

(3) The conductors are permanently and effectively separated from the power supply conductors and securely fastened to racks, insulators, or other approved supports.

(4) In Cable Trays.

Installations in cable trays shall comply with [206.16\(B\)\(4\)\(1\)](#) or (B)(4)(2).

(1) Non-power-limited remote-control and signaling circuit conductors and power-supply conductors not functionally associated with the non-power-limited remote-control and signaling circuit conductors shall be separated by a solid fixed barrier of a material compatible with the cable tray.

(2) Non-power-limited remote-control and signaling circuit conductors and power-supply conductors not functionally associated with the Non-power-limited remote-control and signaling circuit conductors shall be permitted to be installed in a cable tray without barriers where all of the conductors are installed with separate multiconductor Type AC, Type MC, Type MI, or Type TC cables and all the conductors in the cables are insulated at 600 volts or greater.

206.17 Non-power-limited remote-control and signaling Circuit Conductors.

(A) Sizes and Use.

Conductors of sizes 18 AWG and 16 AWG shall be permitted to be used, provided they supply loads that do not exceed the ampacities given in [402.5](#) and are installed in a raceway, an approved enclosure, or a listed cable. Conductors larger than 16 AWG shall not supply loads greater than the ampacities given in [310.14](#). Flexible cords shall comply with Article [400](#).

(B) Insulation.

Insulation on conductors shall be rated for the system voltage and not less than 600 volts. Conductors larger than 16 AWG shall comply with Article [310](#). Conductors in sizes 18 AWG and 16 AWG shall be Type FFH-2, KF-2, KFF-2, PAF, PAFF, PF, PFF, PGF, PGFF, PTF, PTF, RFH-2, RFHH-2, RFHH-3, SF-2, SFF-2, TF, TFF, TFFN, TFN, ZF, or ZFF. Conductors with other types and thicknesses of insulation shall be permitted if listed for non-power-limited remote-control and signaling circuit use.

206.18 Number of Conductors in Cable Trays and Raceway, and Ampacity Adjustment.

(A) Non-power-limited remote-control and signaling Circuit Conductors.

Where only Non-power-limited remote-control and signaling circuit conductors are in a raceway, the number of conductors shall be determined in accordance with [300.17](#). The ampacity adjustment factors given in [310.15\(C\)\(1\)](#) shall apply only if such conductors carry continuous loads in excess of 10 percent of the ampacity of each conductor.

(B) Power-Supply Conductors and Non-power-limited remote-control and signaling Circuit Conductors.

Where power-supply conductors and Non-power-limited remote-control and signaling circuit conductors are permitted in a raceway in accordance with [206.16](#), the number of conductors shall be determined in accordance with [300.17](#). The ampacity adjustment factors given in [310.15\(C\)\(1\)](#) shall apply as follows:

(1) To all conductors where the non-power-limited remote-control and signaling circuit conductors carry continuous loads in excess of 10 percent of the ampacity of each conductor and where the total number of conductors is more than three

(2) To the power-supply conductors only, where the non-power-limited remote-control and signaling circuit conductors do not carry continuous loads in excess of 10 percent of the ampacity of each conductor and where the number of power-supply conductors is more than three

(C) Non-power-limited remote-control and signaling Circuit Conductors in Cable Trays.

Where Non-power-limited remote-control and signaling circuit conductors are installed in cable trays, they shall comply with the provisions of [392.22](#) and [392.80\(A\)](#).

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
2029_NEC_PI_Article_206_wiring_information_lost_Update_from_2020_725_R0.docx	Remote control and signaling wiring	

Statement of Problem and Substantiation for Public Input

The 2020 NEC had requirements for Class 1 power-limited and non-power-limited remote-control and signaling circuits. The wiring methods requirements for both types of circuits were 725.49 thru 725.51. When article 724 for class 1 power-limited circuits was created for the 2023 NEC, these requirements were relocated to 724.49 thru 724.51. This information was lost for non-power-limited remote-control and signaling circuits similar to other requirement losses. The 2026 NEC created Article 206 for non-power-limited remote-control and signaling circuits. However, the wiring information was not included. This loss was discovered during an update of NFPA 79. This public input brings article 206 back to including the proper requirements that have been lost since the 2023 NEC.

Submitter Information Verification

Submitter Full Name: Keith Waters

Organization: Schneider Electric

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Submittal Date: Sun Apr 05 10:56:24 EDT 2026

Committee: NEC-P03

206.15 Non-power-limited remote-control and signaling Circuit Wiring Methods.

Non-power-limited remote-control and signaling circuits shall be installed in accordance with Part I of Article [300](#) and with the wiring methods from the appropriate articles in Chapter [3](#).

Exception No. 1:

The provisions of [206.16](#) through 206.18 shall be permitted to apply in installations of non-power-limited remote-control and signaling circuits.

Exception No. 2:

Methods permitted or required by other articles of this Code shall apply to installations of non-power-limited remote-control and signaling circuits.

206.16 Conductors of Different Circuits in the Same Cable, Cable Tray, Enclosure, or Raceway.

Non-power-limited remote-control and signaling circuits shall be permitted to be installed with other circuits as specified in [206.16\(A\)](#) and (B).

(A) Two or More non-power-limited remote-control and signaling Circuits.

Non-power-limited remote-control and signaling circuits shall be permitted to occupy the same cable, cable tray, enclosure, or raceway without regard to whether the individual circuits are alternating current or direct current, provided all conductors are insulated for the maximum voltage of any conductor in the cable, cable tray, enclosure, or raceway.

(B) Non-power-limited remote-control and signaling Circuits with Power-Supply Circuits.

Non-power-limited remote-control and signaling circuits shall be permitted to be installed with power-supply conductors as specified in [206.16\(B\)\(1\)](#) through (B)(4).

(1) In a Cable, Enclosure, or Raceway.

Non-power-limited remote-control and signaling circuits and power-supply circuits shall be permitted to occupy the same cable, enclosure, or raceway without a barrier only where the equipment powered is functionally associated. Non-power-limited remote-control and signaling circuits shall be permitted to be installed together with the conductors of electric light, power, non-power-limited fire alarm, and medium power network-powered broadband communications circuits were separated by a barrier.

(2) In Factory- or Field-Assembled Control Centers.

Non-power-limited remote-control and signaling circuits and power-supply circuits shall be permitted to be installed in factory- or field-assembled control centers.

(3) In a Manhole.

Non-power-limited remote-control and signaling circuits and power-supply circuits shall be permitted to be installed as underground conductors in a manhole in accordance with one of the following:

(1) The power-supply or non-power-limited remote-control and signaling circuit conductors are in a metal-enclosed cable or Type UF cable.

(2) The conductors are permanently separated from the power-supply conductors by a continuous firmly fixed nonconductor, such as flexible tubing, in addition to the insulation on the wire.

(3) The conductors are permanently and effectively separated from the power supply conductors and securely fastened to racks, insulators, or other approved supports.

(4) In Cable Trays.

Installations in cable trays shall comply with [206.16\(B\)\(4\)\(1\)](#) or (B)(4)(2).

(1) Non-power-limited remote-control and signaling circuit conductors and power-supply conductors not functionally associated with the non-power-limited remote-control and signaling circuit conductors shall be separated by a solid fixed barrier of a material compatible with the cable tray.

(2) Non-power-limited remote-control and signaling circuit conductors and power-supply conductors not functionally associated with the Non-power-limited remote-control and signaling circuit conductors shall be permitted to be installed in a cable tray without barriers where all of the conductors are installed with separate multiconductor Type AC, Type MC, Type MI, or Type TC cables and all the conductors in the cables are insulated at 600 volts or greater.

206.17 Non-power-limited remote-control and signaling Circuit Conductors.

(A) Sizes and Use.

Conductors of sizes 18 AWG and 16 AWG shall be permitted to be used, provided they supply loads that do not exceed the ampacities given in [402.5](#) and are installed in a raceway, an approved enclosure, or a listed cable. Conductors larger than 16 AWG shall not supply loads greater than the ampacities given in [310.14](#). Flexible cords shall comply with Article [400](#).

(B) Insulation.

Insulation on conductors shall be rated for the system voltage and not less than 600 volts. Conductors larger than 16 AWG shall comply with Article [310](#). Conductors in sizes 18 AWG and 16 AWG shall be Type FFH-2, KF-2, KFF-2, PAF, PAFF, PF, PFF, PGF, PGFF, PTF, PTF, RFH-2, RFHH-2, RFHH-3, SF-2, SFF-2, TF, TFF, TFFN, TFN, ZF, or ZFF. Conductors with other types and thicknesses of insulation shall be permitted if listed for non-power-limited remote-control and signaling circuit use.

206.18 Number of Conductors in Cable Trays and Raceway, and Ampacity Adjustment.

(A) Non-power-limited remote-control and signaling Circuit Conductors.

Where only Non-power-limited remote-control and signaling circuit conductors are in a raceway, the number of conductors shall be determined in accordance with [300.17](#). The ampacity adjustment factors given in [310.15\(C\)\(1\)](#) shall apply only if such conductors carry continuous loads in excess of 10 percent of the ampacity of each conductor.

(B) Power-Supply Conductors and Non-power-limited remote-control and signaling Circuit Conductors.

Where power-supply conductors and Non-power-limited remote-control and signaling circuit conductors are permitted in a raceway in accordance with [206.16](#), the number of conductors shall be determined in accordance with [300.17](#). The ampacity adjustment factors given in [310.15\(C\)\(1\)](#) shall apply as follows:

(1) To all conductors where the non-power-limited remote-control and signaling circuit conductors carry continuous loads in excess of 10 percent of the ampacity of each conductor and where the total number of conductors is more than three

(2) To the power-supply conductors only, where the non-power-limited remote-control and signaling circuit conductors do not carry continuous loads in excess of 10 percent of the ampacity of each conductor and where the number of power-supply conductors is more than three

(C) Non-power-limited remote-control and signaling Circuit Conductors in Cable Trays.

Where Non-power-limited remote-control and signaling circuit conductors are installed in cable trays, they shall comply with the provisions of [392.22](#) and [392.80\(A\)](#).

Substantiation:

The 2020 NEC had requirements for Class 1 power-limited and non-power-limited remote-control and signaling circuits. The wiring methods requirements for both types of circuits were 725.49 thru 725.51. When article 724 for class 1 power-limited circuits was created for the 2023 NEC, these requirements were relocated to 724.49 thru 724.51. This information was lost for non-power-limited remote-control and signaling circuits similar to other requirement losses. The 2026 NEC created Article 206 for non-power-limited remote-control and signaling circuits. However, the wiring information was not included. This loss was discovered during an update of NFPA 79. This public input brings article 206 back to including the proper requirements that have been lost since the 2023 NEC.



Public Input No. 68-NFPA 70-2025 [Definition: Cable Sheath.]

Cable Sheath.

A single or multiple layers of a protective covering that holds and protects the conductors or optical fibers, or both, contained inside. (CMP-3 16)

Statement of Problem and Substantiation for Public Input

Cable sheaths are mentioned in multiple Articles in Chapter 7 & 8 that are the responsibility of Panel 16. Logically Panel 16 should be responsible for the definition of cable sheath too.

CCCA submitted the following 28 PIs for Article 100, Definitions.

1. Public Input No. 66-NFPA 70-2025 [Definition: Cable Bundle.]
2. Public Input No. 67-NFPA 70-2025 [Definition: Cable Routing Assembly.]
3. Public Input No. 68-NFPA 70-2025 [Definition: Cable Sheath.]
4. Public Input No. 110-NFPA 70-2025 [Definition: Cable, Abandoned. (Abandoned Cable)]
5. Public Input No. 111-NFPA 70-2025 [Definition: Cable, Coaxial. (Coaxial Cable)]
6. Public Input No. 61-NFPA 70-2025 [Definition: Cable, Limited-Energy. (Limited-Energy Cable)]
7. Public Input No. 64-NFPA 70-2025 [Definition: Cable, Limited-Use. (Limited-Use Cable)]
8. Public Input No. 62-NFPA 70-2025 [Definition: Cable, Metallic Conductor. (Metallic Conductor ...
9. Public Input No. 65-NFPA 70-2025 [Definition: Cable, Power-Limited Tray (Type PLTC). (Power-L...]
10. Public Input No. 63-NFPA 70-2025 [Definition: Cable, Under Carpet. (Under Carpet Cable)]
11. Public Input No. 69-NFPA 70-2025 [Definition: Class 2 Circuit.]
12. Public Input No. 70-NFPA 70-2025 [Definition: Class 3 Circuit.]
13. Public Input No. 71-NFPA 70-2025 [Definition: Class 4 Circuit.]
14. Public Input No. 72-NFPA 70-2025 [Definition: Class 4 Device.]
15. Public Input No. 73-NFPA 70-2025 [Definition: Class 4 Power System.]
16. Public Input No. 74-NFPA 70-2025 [Definition: Class 4 Receiver.]
17. Public Input No. 75-NFPA 70-2025 [Definition: Class 4 Transmitter.]
18. Public Input No. 76-NFPA 70-2025 [Definition: Class 4 Utilization Equipment.]
19. Public Input No. 112-NFPA 70-2025 [Definition: Fault-Managed Power (FMP).]
20. Public Input No. 113-NFPA 70-2025 [Definition: General-Purpose Cables, Cable Routing Assemblies...]
21. Public Input No. 114-NFPA 70-2025 [Definition: Limited-Energy System.]
22. Public Input No. 115-NFPA 70-2025 [Definition: Plenum Cable, Cable Routing Assemblies, and Rac...]
23. Public Input No. 580-NFPA 70-2026 [Definition: Qualified Person.]
24. Public Input No. 574-NFPA 70-2026 [New Definition after Definition: Qualified Person.]
25. Public Input No. 77-NFPA 70-2025 [Definition: Raceway, Communications. (Communications Racewa...]
26. Public Input No. 78-NFPA 70-2025 [Definition: Riser Cable, Cable Routing Assemblies, and Race...]
27. Public Input No. 79-NFPA 70-2025 [Definition: Signaling Circuit.]
28. Public Input No. 109-NFPA 70-2025 [Definition: Wire (as applied to limited-energy systems).]

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 110-NFPA 70-2025 [Definition: Cable, Abandoned. (Abandoned Cable)]	Update Panel responsible for definition

Public Input No. 111-NFPA 70-2025 [Definition: Cable, Coaxial. (Coaxial Cable)]	Update Panel responsible for definition
Public Input No. 64-NFPA 70-2025 [Definition: Cable, Limited-Use. (Limited-Use Cable)]	Update Panel responsible for definition
Public Input No. 65-NFPA 70-2025 [Definition: Cable, Power-Limited Tray (Type PLTC). (Power-L...)]	Update Panel responsible for definition
Public Input No. 69-NFPA 70-2025 [Definition: Class 2 Circuit.]	Update Panel responsible for definition
Public Input No. 70-NFPA 70-2025 [Definition: Class 3 Circuit.]	Update Panel responsible for definition
Public Input No. 71-NFPA 70-2025 [Definition: Class 4 Circuit.]	Update Panel responsible for definition
Public Input No. 72-NFPA 70-2025 [Definition: Class 4 Device.]	Update Panel responsible for definition
Public Input No. 73-NFPA 70-2025 [Definition: Class 4 Power System.]	Update Panel responsible for definition
Public Input No. 74-NFPA 70-2025 [Definition: Class 4 Receiver.]	Update Panel responsible for definition
Public Input No. 75-NFPA 70-2025 [Definition: Class 4 Transmitter.]	Update Panel responsible for definition
Public Input No. 76-NFPA 70-2025 [Definition: Class 4 Utilization Equipment.]	Update Panel responsible for definition
Public Input No. 112-NFPA 70-2025 [Definition: Fault-Managed Power (FMP).]	Update Panel responsible for definition
Public Input No. 113-NFPA 70-2025 [Definition: General-Purpose Cables, Cable Routing Assemblie...]	Update Panel responsible for definition
Public Input No. 114-NFPA 70-2025 [Definition: Limited-Energy System.]	Update Panel responsible for definition
Public Input No. 115-NFPA 70-2025 [Definition: Plenum Cable, Cable Routing Assemblies, and Rac...]	Update Panel responsible for definition
Public Input No. 77-NFPA 70-2025 [Definition: Raceway, Communications. (Communications Racewa...]	Update Panel responsible for definition
Public Input No. 78-NFPA 70-2025 [Definition: Riser Cable, Cable Routing Assemblies, and Race...]	Update Panel responsible for definition
Public Input No. 79-NFPA 70-2025 [Definition: Signaling Circuit.]	Update Panel responsible for definition
Public Input No. 109-NFPA 70-2025 [Definition: Wire (as applied to limited-energy systems).]	Update Panel responsible for definition
Public Input No. 66-NFPA 70-2025 [Definition: Cable Bundle.]	Update Panel responsible for definition
Public Input No. 66-NFPA 70-2025 [Definition: Cable Bundle.]	
Public Input No. 67-NFPA 70-2025 [Definition: Cable Routing Assembly.]	

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Public Input No. 2407-NFPA 70-2026 [Section No. 206.1]

206.1 Scope.

This article provides the general requirements for non-power-limited remote-control and signaling circuits operating at 600Volts or less .

Informational Note No. 1: See Article 724 for Class 1 power-limited remote-control and signaling circuit requirements.

Informational Note No. 2: See Article 725 for Class 2 and Class 3 power-limited remote-control and signaling circuit requirements.

Informational Note No.3: The circuits described herein may be characterized by usage that differentiates them from electric light and power circuits; therefore, alternative requirements to those of Chapters 1 through 4 are given with regard to minimum wire sizes, ampacity adjustment and correction factors, overcurrent protection, insulation requirements, and wiring methods and materials.

Statement of Problem and Substantiation for Public Input

During the 2023 code cycle, CMP 3 attempted to separate the requirements for Class 1 non-power limited remote control and signaling wiring from the requirements for power limited circuits by re-locating the Class 1 non-power limited circuit requirements from Article 725 to Article 300.26.

During this move, many of the requirements for remote control and signaling were not carried forward to Article 300.26 and no justification was provided in the CMP 3 report to indicate why these requirements were determined not to be needed.

In the resolution Statement for Public Input 2775 (FR9591) the panel stated “Non-power limited remote control and signalling 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. This statement was made incorrectly.

TIA No. 23-8 issued on March 21, 2023 identified that “Changes to the location of code requirements for control conductors resulted in the omission of information required to determine the size and construction of non-power-limited conductors used in these applications. To provide clear direction to Code users, the language in 300.26(3) is revised to include directions on how to size conductors used for non-power-limited control conductors. This language is intended to mirror the requirements that were in the 2020 NEC, with no technical changes.”

During the 2026 code cycle, (FR8811) Article 206 was created to provide the general requirements for non-power limited remote control and signaling circuits. It borrows heavily from Tentative Interim Amendment (TIA) 23-8, issued March 21, 2023. However, Article 206 still does not return the requirements back to the original technical requirements from the 2020 version of Article 725.

The proposed added text re-establishes the requirements that were in place in the 2020 version of Article 725 for Class 1 non-power limited remote control and signal circuits.

See also PI-2410 and PI-2414

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 2410-NFPA 70-2026 [Section No. 206.4(C)]</u>	
<u>Public Input No. 2414-NFPA 70-2026 [Section No. 206.4(D)]</u>	

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206.4 Installation.

Non-power-limited remote-control and signaling circuits shall be installed in accordance with 300.4 through 300.25 and shall comply with 206.4(A) through 206.4(D).

(A) Sizes and Use.

(1) Installation and Maximum Load for 18 AWG and 16 AWG Conductors.

18 AWG ~~and 16 AWG~~ copper and 16 AWG ~~and 14 AWG~~ copper ~~or copper~~-clad aluminum conductors shall be permitted to supply loads that do not exceed the ampacities specified in 402.5. They shall be installed in a raceway, enclosure, or listed cable.

~~**(3)**~~

~~**(2)** Installation and Maximum Load for 14 AWG Conductors~~

~~14 AWG copper-clad aluminum conductors shall only be permitted in Type MC cable and Type TC cable. They shall only supply loads not exceeding 8 amperes.~~

Ampacity Calculation.

Conductors larger than 16 AWG copper or copper-clad aluminum shall not supply loads greater than the ampacities specified in 310.14 without applying the ampacity adjustment and correction factors specified in 310.15 to the ampacity calculation.

~~**(4 3)**~~ Flexible Cords.

Flexible cords shall comply with Article 400 Parts I and II.

(B) Insulation.

(1) Rating.

Conductor insulation shall be rated for the system voltage and not less than 600 volts.

(2) General Requirements.

Conductors larger than ~~16 AWG~~ 18 AWG copper or ~~14 AWG~~ 16 AWG copper-clad aluminum shall comply with the applicable general requirements for conductors rated up to and including 2000 volts for type designations, insulations, markings, ampacity ratings, and uses in accordance with 310.4, 310.5, 310.6, 310.8, 310.10, and 310.14.

(3) Type.

Conductors that are 18 AWG copper, 16 AWG copper, or ~~14 AWG~~ 16 AWG copper-clad aluminum shall be Type FFH-2, Type KF-2, Type KFF-2, Type PAF, Type PAFF, Type PF, Type PFF, Type PGF, Type PGFF, Type PTF, Type PTF, Type RFH-2, Type RFHH-2, Type RFHH-3, Type SF-2, SFF-2, Type TF, Type TFF, Type TFFN, Type TFN, Type ZF, or Type ZFF.

(C) Non-Power-Limited Remote-Control and Signaling Circuits with Power-Supply Circuits.

Non-power-limited remote-control and signaling circuit conductors rated 1000 volts ac, 1500 volts dc, nominal, or less and power-supply circuits shall be permitted to occupy the same cable, enclosure, or raceway without a barrier if all conductors have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway, and the equipment powered is functionally associated.

(D) Overcurrent Protection.

Non-power-limited remote control and signaling circuit conductors shall have overcurrent protection in accordance with 240.4 or 240.5.

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
PI_206.4_A_.pdf	Pdf file of proposed text to clarify any issues from the Terra entry.	✓

Statement of Problem and Substantiation for Public Input

Copper-clad aluminum conductors were introduced into the National Electrical Code (NEC) in the 1971 Edition. The use of copper-clad aluminum grew throughout the 1970s but then waned as the price of copper made it less economically viable. Beginning in the late 2000's with copper prices escalating, the use of copper-clad aluminum has experienced a strong resurgence. The 2023 and 2026 editions of the NEC had many changes adopted to update for copper-clad aluminum conductors. Because of this increased usage, and after a more thorough review of the subject matter, it was determined the NEC needed additional updates in a number of areas to provide installers and inspectors with information for the applications of copper-clad aluminum.

This section was created by a TIA after the 2023 NEC cycle due to changes to Article 725 and the reversal of CMP-6 to establish an ampacity for 14 AWG copper-clad aluminum, where it was allowed for control and signal circuits starting with the 2020 edition of the NEC. The 2026 NEC moved what was 300.26 into the new Article 206.

This public input is to update these requirements for 16 AWG and 14 AWG copper-clad aluminum conductors for non-power limited remote-control and signaling circuits. In the 2026 NEC cycle 16 AWG, and 14 AWG copper-clad aluminum conductors were added to Table 402.5 that is used for ampacities of control and signal circuits. In addition, 14 AWG copper-clad aluminum was added for general branch circuit use in 310.5(A) and to Table 310.16 for ampacity. 14 AWG copper-clad aluminum is permitted to be insulated with THHN or similar insulation materials, the same as 14 AWG copper.

The text in 206.4(A) is revised to recognize and clarify the copper and copper-clad aluminum conductor sizes that are covered by this section.

The existing section 204.4(A)(2) is deleted as being no longer needed since 14 AWG copper-clad aluminum is recognized for general branch circuit applications as well as having ampacities provided in Table 310.16, just like 16 AWG and 14 AWG copper. The references to the two cable wiring methods is now incorrect with use recognition now provided for other wiring methods. The ampacity and current limitations provided are now covered by Articles 310.14 and 240.4(D) and the present language is redundant and unnecessary to set a requirement for 14 AWG copper-clad aluminum and not for other conductors.

206.4(A)(3) is revised to clarify applicability to conductors larger than 18 AWG copper and 16 AWG copper-clad aluminum since those larger sizes are presently covered by Article 310.14 requirements.

The insulation specifications in 206.4(B)(3) is revised to recognize that 14 AWG copper-clad aluminum has THHN or similar type insulation, like 14 AWG copper and therefore does not require having these alternate insulation types.

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206.4 Installation.

Non-power-limited remote-control and signaling circuits shall be installed in accordance with [300.4](#) through [300.25](#) and shall comply with [206.4\(A\)](#) through [206.4\(D\)](#).

(A) Sizes and Use.

(1) Installation and Maximum Load for 18 AWG and 16 AWG Conductors. 18 AWG [and 16 AWG](#) copper and 16 AWG [and 14 AWG](#) ~~copper or~~ copper-clad aluminum conductors shall be permitted to supply loads that do not exceed the ampacities specified in [402.5](#). They shall be installed in a raceway, enclosure, or listed cable.

~~**(2) Installation and Maximum Load for 14 AWG Conductors** 14 AWG copper-clad aluminum conductors shall only be permitted in Type MC cable and Type TC cable. They shall only supply loads not exceeding 8 amperes.~~

(3) Ampacity Calculation. Conductors larger than ~~16~~[18](#) AWG copper or [16 AWG](#) copper-clad aluminum shall not supply loads greater than the ampacities specified in [310.14](#) without applying the ampacity adjustment and correction factors specified in [310.15](#) to the ampacity calculation.

(4) Flexible Cords. Flexible cords shall comply with Article [400](#) Parts I and II.

(B) Insulation.

(1) Rating. Conductor insulation shall be rated for the system voltage and not less than 600 volts.

(2) General Requirements. Conductors larger than 16 AWG copper or ~~14 AWG~~ copper-clad aluminum shall comply with the applicable general requirements for conductors rated up to and including 2000 volts for type designations, insulations, markings, ampacity ratings, and uses in accordance with [310.4](#), [310.5](#), [310.6](#), [310.8](#), [310.10](#), and [310.14](#).

(3) Type. Conductors that are 18 AWG copper, 16 AWG copper, or ~~14~~[16](#) AWG copper-clad aluminum shall be Type FFH-2, Type KF-2, Type KFF-2, Type PAF, Type PAFF, Type PF, Type PFF, Type PGF, Type PGFF, Type PTF, Type PTFF, Type RFH-2, Type RFHH-2, Type RFHH-3, Type SF-2, SFF-2, Type TF, Type TFF, Type TFFN, Type TFN, Type ZF, or Type ZFF.

SUBSTANTIATION

Copper-clad aluminum conductors were introduced into the National Electrical Code (NEC) in the 1971 Edition. The use of copper-clad aluminum grew throughout the 1970s but then waned as the price of copper made it less economically viable. Beginning in the late 2000's with copper prices escalating, the use of copper-clad aluminum has experienced a strong resurgence. The 2023 and 2026 editions of the NEC had many changes adopted to update for copper-clad aluminum conductors. Because of this increased usage, and after a more thorough

review of the subject matter, it was determined the NEC needed additional updates in a number of areas to provide installers and inspectors with information for the applications of copper-clad aluminum.

This section was created by a TIA after the 2023 NEC cycle due to changes to Article 725 and the reversal of CMP-6 to establish an ampacity for 14 AWG copper-clad aluminum, where it was allowed for control and signal circuits starting with the 2020 edition of the NEC. The 2026 NEC moved what was 300.26 into the new Article 206.

This public input is to update these requirements for 16 AWG and 14 AWG copper-clad aluminum conductors for non-power limited remote-control and signaling circuits. In the 2026 NEC cycle 16 AWG, and 14 AWG copper-clad aluminum conductors were added to Table 402.5 that is used for ampacities of control and signal circuits. In addition, 14 AWG copper-clad aluminum was added for general branch circuit use in 310.5(A) and to Table 310.16 for ampacity. 14 AWG copper-clad aluminum is permitted to be insulated with THHN or similar insulation materials, the same as 14 AWG copper.

The text in 206.4(A) is revised to recognize and clarify the copper and copper-clad aluminum conductor sizes that are covered by this section.

The existing section 204.4(A)(2) is deleted as being no longer needed since 14 AWG copper-clad aluminum is recognized for general branch circuit applications as well as having ampacities provided in Table 310.16, just like 16 AWG and 14 AWG copper. The references to the two cable wiring methods is now incorrect with use recognition now provided for other wiring methods. The ampacity and current limitations provided are now covered by Articles 310.14 and 240.4(D) and the present language is redundant and unnecessary to set a requirement for 14 AWG copper-clad aluminum and not for other conductors.

206.4(A)(3) is revised to clarify applicability to conductors larger than 18 AWG copper and 16 AWG copper-clad aluminum since those larger sizes are presently covered by Article 310.14 requirements.

The insulation specifications in 206.4(B)(3) is revised to recognize that 14 AWG copper-clad aluminum has THHN or similar type insulation, like 14 AWG copper and therefore does not require having these alternate insulation types.



Public Input No. 567-NFPA 70-2026 [Section No. 206.4(B)]

(B) Insulation.

(1) Rating.

Conductor insulation shall be rated for the system voltage ~~and not less than 600 volts~~ .

(2) General Requirements.

~~Conductors larger than 16 AWG copper or 14 AWG copper-clad aluminum shall~~ Conductors shall comply with the applicable general requirements for conductors rated up to and including 2000 volts for type designations, insulations, markings, ampacity ratings, and uses in accordance with 310.4, 310.5, 310.6, 310.8, 310.10, and 310.14.

~~(3) Type:~~

~~Conductors that are 18 AWG copper, 16 AWG copper, or 14 AWG copper-clad aluminum shall be Type FFH-2, Type KF-2, Type KFF-2, Type PAF, Type PAFF, Type PF, Type PFF, Type PGF, Type PGFF, Type PTF, Type PTFE, Type RFH-2, Type RFHH-2, Type RFHH-3, Type SF-2, SFF-2, Type TF, Type TFF, Type TFFN, Type TFN, Type ZF, or Type ZFF.~~

-

Statement of Problem and Substantiation for Public Input

The conductors listed in 206.4(B)(3) are Fixture wire type conductors listed in Article 402 and table 402.13. 402.10 uses limits these conductors to luminaires and similar equipment. I do not see how non-power limited remote control and signaling circuits is considered to be a luminaire. As long as the conductor meets the amperage, voltage rating, and location use as found in Article 310 and in Tables 310.4(1) and in 310.16 it should be allowed to be used for a non-power limited remote control and signaling circuit.

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Public Input No. 2410-NFPA 70-2026 [Section No. 206.4(C)]

(C) Non-Power-Limited Remote-Control and Signaling Circuits with Power-Supply Circuits.

206.4(C)(1) In a Cable, Enclosure, or Raceway

Non-power-limited remote-control and signaling circuit conductors rated 1000 volts ac, 1500 volts dc, nominal, or less and power-supply circuits shall be permitted to occupy the same cable, enclosure, or raceway without a barrier if all conductors have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway, and the equipment powered is functionally associated.

206.4(C)(2) In Factory- or Field-Assembled Control Centers

Non-power-limited remote-control and signaling circuit conductors rated 1000 volts ac, 1500 volts dc, nominal, or less and power-supply circuits shall be permitted to be installed in factory- or field-assembled control centers.

206.4(C)(3) In Cable Trays

Installations in cable trays shall comply with (a) or (b) below:

(a) Non-power-limited remote-control and signaling circuit conductors and power-supply conductors not functionally associated shall be separated by a solid, fixed barrier of a material compatible with the cable tray.

(b) Non-power-limited remote-control and signaling circuit conductors and power-supply conductors not functionally associated shall be permitted to be installed in a cable tray without barriers where all of the of the conductors are installed with separate multiconductor Type AS, Type MC, Type MI, or Type TC cables and all the conductors in the cables are insulated at 1000 volts ac, 1500 volts dc, nominal.

Statement of Problem and Substantiation for Public Input

During the 2023 code cycle, CMP 3 attempted to separate the requirements for Class 1 non-power limited remote control and signaling wiring from the requirements for power limited circuits by re-locating the Class 1 non-power limited circuit requirements from Article 725 to Article 300.26.

During this move, many of the requirements for remote control and signaling were not carried forward to Article 300.26 and no justification was provided in the CMP 3 report to indicate why these requirements were determined not to be needed.

In the resolution Statement for Public Input 2775 (FR9591) the panel stated “Non-power limited remote control and signalling 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. This statement was made incorrectly.

TIA No. 23-8 issued on March 21, 2023 identified that “Changes to the location of code requirements for control conductors resulted in the omission of information required to determine the size and construction of non-power-limited conductors used in these applications. To provide clear direction to Code users, the language in 300.26(3) is revised to include directions on how to size conductors used for non-power-limited control conductors. This language is intended to mirror the requirements that were in the 2020 NEC, with no technical changes.”

During the 2026 code cycle, (FR8811) Article 206 was created to provide the general requirements for non-power limited remote control and signaling circuits. It borrows heavily from Tentative Interim Amendment (TIA) 23-8, issued March 21, 2023. However, Article 206 still does not return the requirements back to the original technical requirements from the 2020 version of Article 725.

The proposed added text re-establishes the requirements that were in place in the 2020 version of Article 725 for Class 1 non-power limited remote control and signal circuits.

See also PI-2407 and PI-2414

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 2407-NFPA 70-2026 [Section No. 206.1]</u>	

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Committee: NEC-P03

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Public Input No. 2414-NFPA 70-2026 [Section No. 206.4(D)]

(D) Number of Conductors in Cable Trays and Raceways and Ampacity Adjustment

206.4(D)(1) Class 1 Circuit Conductors.

Where only Class 1 circuit conductors are in a raceway, the number of conductors shall be determined in accordance with 300.19. The ampacity adjustment factors given in 310.15(C)(1) shall apply only if such conductors carry continuous loads in excess of 10 percent the ampacity of each conductor.

206.4(D)(2) Power-Supply conductors and Class 1 circuit conductors.

Where power-supply conductors and Class 1 circuit conductors are permitted in a raceway in accordance with 206.4(C), the number of conductors shall be determined in accordance with 300.19. The ampacity adjustment factors given in 310.15(C)(1) shall apply as follows:

(a) To all conductors where the Class 1 circuit conductors carry continuous loads in excess of 10 percent of the ampacity of each conductor and where the total number of conductors is more than three.

(b) To the power-supply conductors only, where the Class 1 circuit conductors do not carry continuous loads in excess of 10 percent of the ampacity of each conductor and where the number of power-supply conductors is more than three.

(E) Overcurrent Protection.

Non-power-limited remote control and

signaling

signalling circuit conductors shall have overcurrent protection in accordance with 240.4 or 240.5 .

(F) Safety-Control Equipment

If controlling safety-control equipment, Class 1 circuits shall be provided with physical protection if the failure of such equipment to operate introduces a direct fire or life hazard. All conductors of such circuits shall be installed in rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, electrical metallic tubing, Type MI cable, or Type MC cable, or be otherwise suitably protected from physical damage.

Statement of Problem and Substantiation for Public Input

During the 2023 code cycle, CMP 3 attempted to separate the requirements for Class 1 non-power limited remote control and signaling wiring from the requirements for power limited circuits by re-locating the Class 1 non-power limited circuit requirements from Article 725 to Article 300.26.

During this move, many of the requirements for remote control and signaling were not carried forward to Article 300.26 and no justification was provided in the CMP 3 report to indicate why these requirements were determined not to be needed.

In the resolution Statement for Public Input 2775 (FR9591) the panel stated "Non-power limited remote control and signalling 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. This statement was made incorrectly.

TIA No. 23-8 issued on March 21, 2023 identified that "Changes to the location of code requirements for control conductors resulted in the omission of information required to determine the size and construction of non-power-limited conductors used in these applications. To provide clear direction to Code users, the language in 300.26(3) is revised to include directions on how to size conductors used for non-power-limited control conductors. This language is intended to mirror the requirements that were in the 2020 NEC, with no technical changes."

During the 2026 code cycle, (FR8811) Article 206 was created to provide the general requirements for non-power limited remote control and signaling circuits. It borrows heavily from Tentative Interim Amendment (TIA) 23-8, issued March 21, 2023. However, Article 206 still does not return the requirements back to the original technical requirements from the 2020 version of Article 725.

The proposed added text re-establishes the requirements that were in place in the 2020 version of Article 725 for Class 1 non-power limited remote control and signal circuits.

See also PI-2407 and PI-2410

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 2407-NFPA 70-2026 [Section No. 206.1]</u>	
<u>Public Input No. 2410-NFPA 70-2026 [Section No. 206.4(C)]</u>	

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Public Input No. 2695-NFPA 70-2026 [Article 300]

~~Article 300~~ General Requirements for Wiring Methods and Materials

~~300.1~~ Scope:

~~(A)~~ Covered:

~~This article covers general requirements for wiring methods and materials for all wiring installations not~~

Article 300 General Requirements

PART I. General

300.1 Scope.

This article covers general requirements for installations rated not over 1000 volts ac, 1500 volts dc, nominal, unless modified by requirements located elsewhere in this code.

300.4 Electrical Connections.

Termination devices such as pressure terminal or pressure splicing connectors and soldering lugs shall be identified, installed, and used for the material of the conductor. Conductors shall not be intermixed in a terminal or splicing connector or soldering lug where physical contact occurs between dissimilar conductors unless the device is identified for the purpose and conditions of use. Materials such as solder, fluxes, inhibitors, and compounds, where employed, shall be identified for the use and shall be of a type that will not adversely affect the conductors, installation, or equipment.

Connectors and terminals for conductors more finely stranded than Class B and Class C stranding as shown in Chapter 9 Table 10 shall be identified for the specific conductor class or classes.

(A) Terminals. Connection of conductors to terminal parts shall ensure a mechanically secure electrical connection without damaging the conductors and shall be made by means of pressure connectors (including set-screw type), solder lugs, or splices to flexible leads. Connection by means of wire-binding screws or studs and nuts that have upturned lugs or the equivalent shall be permitted for 10 AWG or smaller conductors.

Terminals for more than one conductor and terminals used to connect aluminum shall be so identified.

(B) Splices. Conductors shall be spliced or joined with splicing devices identified for the use or by brazing, welding, or soldering with a fusible metal or alloy. Soldered splices shall first be spliced or joined so as to be mechanically and electrically secure without solder and then be soldered. All splices and joints and the free ends of conductors shall be covered with an insulation equivalent to that of the conductors or with an identified insulating device.

Wire connectors or splicing means installed on conductors for direct burial shall be listed for such use.

(C) Temperature Limitations. The temperature rating associated with the ampacity of a conductor shall be selected and coordinated so as not to exceed the lowest temperature rating of any connected termination, conductor, or device. Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustment, correction, or both.

(1) Equipment Provisions. The determination of termination provisions of equipment shall be based on 300.4(C)(1)(a) or 300.4(C)(1)(b). Unless the equipment is listed and marked otherwise, conductor ampacities used in determining equipment termination provisions shall be based on Table 310.16 as appropriately modified by 310.12.

(a) Termination provisions of equipment for circuits rated 100 amperes or less, or marked for 14 AWG through 1 AWG conductors, shall be used only for one of the following:

(1) Conductors rated 60°C (140°F).

(2) Conductors with higher temperature ratings, provided the ampacity of such conductors is determined based on the 60°C (140°F) ampacity of the conductor size used.

(3) Conductors with higher temperature ratings if the equipment is listed and identified for use with such conductors.

(4) For motors marked with design letters B, C, or D, conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity.

(b) Termination provisions of equipment for circuits rated over 100 amperes, or marked for conductors larger than 1 AWG, shall be used only for one of the following:

(1) Conductors rated 75°C (167°F)

(2) Conductors with higher temperature ratings, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity of the conductor size used, or up to their ampacity if the equipment is listed and identified for use with such conductors

(2) Separate Connector Provisions. Separately installed pressure connectors shall be used with conductors at the ampacities not exceeding the ampacity at the listed and identified temperature rating of the connector.

Informational Note: Equipment markings or listing information may additionally restrict the sizing and temperature ratings of connected conductors.

(D) Terminal Connection Torque. Tightening torque values for terminal connections shall be as indicated on equipment or in installation instructions provided by the manufacturer. An approved means shall be used to achieve the indicated torque value.

Informational Note No. 1: Examples of approved means of achieving the indicated torque values include torque tools or devices such as shear bolts or breakaway-style devices with visual indicators that demonstrate that the proper torque has been applied.

Informational Note No. 2: See UL Standard 486A-486B, Standard for Safety-Wire Connectors, Informative Annex I for torque values in the absence of manufacturer's recommendations. The equipment manufacturer can be contacted if numeric torque values are not indicated on the equipment or if the installation instructions are not available.

Informational Note No. 3: See NFPA 70B, Standard for Electrical Equipment Maintenance, Section 7.2 for torquing threaded connections and terminations.

300.5 Guarding of Live Parts.

(A) Live Parts Guarded Against Accidental Contact. Except as elsewhere required or permitted by this code, live parts of electrical equipment operating at 50 volts ac/dc to 1000 volts ac, 1500 volts dc, nominal, shall be guarded against accidental contact by approved enclosures or by any of the following means:

(1) By location in a room, vault, or similar enclosure that is accessible only to qualified persons.

(2) By permanent, substantial partitions or screens arranged so that only qualified persons have access to the space within reach of the live parts. Any openings in such partitions or screens shall be sized and located so that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.

(3) By location on a balcony, gallery, or platform elevated and arranged so as to exclude unqualified persons.

(4) By elevation above the floor or other working surface as follows:

a. A minimum of 2.5 m (8 ft) for 50 volts to 300 volts between ungrounded conductors

b. A minimum of 2.6 m (8 ft 6 in.) for 301 volts to 600 volts between ungrounded conductors

c. A minimum of 2.62 m (8 ft 7 in.) for 601 volts to 1000 volts between ungrounded conductors

(B) Prevent Physical Damage. In locations where electrical equipment is likely to be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent such damage.

(C) Warning Signs. Entrances to rooms and other guarded locations that contain exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter. The marking shall comply with 110.21(B).

300.6 Enclosure Types. Other than surrounding fences or walls, enclosures of switchboards, switchgear, enclosed panelboards, industrial control panels, motor control centers, meter sockets, enclosed switches, transfer switches, power outlets, circuit breakers, adjustable-speed drive systems, pullout switches, portable power distribution equipment, termination boxes, general-purpose transformers, fire pump controllers, fire pump motors, and motor controllers, and intended for such locations, shall be marked with an enclosure-type number as shown in Table 300.6.

Table 300.6 shall be used for selecting these enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that may occur within the enclosure or enter via the raceway or unsealed openings.

Table 300.6 Enclosure Selection

<u>Provides a Degree of Protection Against the Following Environmental Conditions</u>	<u>For Outdoor Use</u>									
	<u>Enclosure Type Number</u>									
	<u>3</u>	<u>3R</u>	<u>3S</u>	<u>3X</u>	<u>3RX</u>	<u>3SX</u>	<u>4</u>	<u>4X</u>	<u>6</u>	<u>6P</u>
<u>Incidental contact with the enclosed equipment</u>	X	X	X	X	X	X	X	X	X	X
<u>Rain, snow, and sleet</u>	X	X	X	X	X	X	X	X	X	X
<u>Sleet*</u>	=	=	X	=	=	X	=	=	=	=
<u>Windblown dust</u>	X	=	X	X	=	X	X	X	X	X
<u>Hosedown</u>	=	=	=	=	=	=	X	X	X	X
<u>Corrosive agents</u>	=	=	=	X	X	X	=	X	=	X
<u>Temporary submersion</u>	=	=	=	=	=	=	=	=	X	X
<u>Prolonged submersion</u>	=	=	=	=	=	=	=	=	=	X
<u>Provides a Degree of Protection Against the Following Environmental Conditions</u>	<u>For Indoor Use</u>									
	<u>Enclosure Type Number</u>									
	<u>1</u>	<u>2</u>	<u>4</u>	<u>4X</u>	<u>5</u>	<u>6</u>	<u>6P</u>	<u>12</u>	<u>12K</u>	<u>13</u>
<u>Incidental contact with the enclosed equipment</u>	X	X	X	X	X	X	X	X	X	X
<u>Falling dirt</u>	X	X	X	X	X	X	X	X	X	X
<u>Falling liquids and light splashing</u>	=	X	X	X	X	X	X	X	X	X
<u>Circulating dust, lint, fibers, and flyings</u>	=	=	X	X	=	X	X	X	X	X
<u>Settling airborne dust, lint, fibers, and flyings</u>	=	=	X	X	X	X	X	X	X	X
<u>Hosedown and splashing water</u>	=	=	X	X	=	X	X	=	=	=
<u>Oil and coolant seepage</u>	=	=	=	=	=	=	=	X	X	X
<u>Oil or coolant spraying and splashing</u>	=	=	=	=	=	=	=	=	=	X
<u>Corrosive agents</u>	=	=	=	X	=	=	X	=	=	=

<u>Provides a Degree of Protection Against the Following Environmental Conditions</u>	<u>For Outdoor Use</u>									
	<u>Enclosure Type Number</u>									
	<u>3</u>	<u>3R</u>	<u>3S</u>	<u>3X</u>	<u>3RX</u>	<u>3SX</u>	<u>4</u>	<u>4X</u>	<u>6</u>	<u>6P</u>
<u>Temporary submersion</u>	=	=	=	=	=	X	X	=	=	=
<u>Prolonged submersion</u>	=	=	=	=	=	=	X	=	=	=

*The mechanism shall be operable when ice covered.

Informational Note No. 1: The term raintight is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 6, and 6P. The term rainproof is typically used in conjunction with Enclosure Types 3R and 3RX. The term watertight is typically used in conjunction with Enclosure Types 4, 4X, 6, and 6P. The term driptight is typically used in conjunction with Enclosure Types 2, 5, 12, 12K, and 13. The term dusttight is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 5, 6, 6P, 12, 12K, and 13.

Informational Note No. 2: See ANSI/IEC 60529, Degrees of Protection Provided by Enclosures, for ingress protection (IP) ratings.

Informational Note No. 3: See 502.10(A)(3), 502.10(B)(4), 503.10(A)(2), and 506.15(C)(3) for information on the use of dusttight enclosures in hazardous locations.

Informational Note No. 4: Some enclosure types, such as 12, 12K, or 13 enclosures, may be marked with an ancillary “-XH” for corrosive and hosedown capable indoor enclosure.

Informational Note No. 5: Some type 4X enclosures may be marked “indoor only.”

Informational Note No. 6: See NEMA EN 10250-2024 (formerly known as NEMA 250), Enclosures for Electrical Equipment (1000 Volts Maximum), for the description of the “Enclosure Type Rating: Ancillary — PW for Pressure Wash and XH for Corrosive — and Hosedown — Capable Indoor Enclosures.”

PART II. Working Space

300.10 Spaces About Electrical Equipment. Working space, and access to and egress from working space, shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment. Open equipment doors shall not impede access to and egress from the working space. Access or egress is impeded if one or more simultaneously opened equipment doors restrict working space access to be less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high when such doors are or can be opened 90 degrees.

(A) Working Space. Working space for equipment likely to require examination, adjustment, servicing, or maintenance while energized shall comply with the dimensions of 300.10(A)(1), 300.10(A)(2), 300.10(A)(3), and 300.10(A)(4) or as required or permitted elsewhere in this code. By special permission, smaller working spaces shall be permitted where all exposed live parts operate at not greater than 30 volts rms, 42 volts peak, or 60 volts dc.

Informational Note: See NFPA 70E, Standard for Electrical Safety in the Workplace, for guidance, such as determining severity of potential exposure and planning safe work practices including establishing an electrically safe work condition, arc flash labeling, and selecting personal protective equipment.

(1) Depth of Working Space. The depth of the working space in the direction of live parts shall not be less than that specified in Table 300.10(A)(1) unless the requirements of 300.10(A)(1)(a) or 300.10(A)(1)(b) are met. Distances shall be measured from the enclosure front or opening, if such live parts are enclosed.

Table 300.10(A)(1) Working Spaces

<u>Nominal Voltage to Ground</u>	<u>Minimum Clear Distance</u>		
	<u>Condition 1</u>	<u>Condition 2</u>	<u>Condition 3</u>
<u>0–150 ac or dc</u>	<u>900 mm (3 ft)</u>	<u>900 mm (3 ft)</u>	<u>900 mm (3 ft)</u>
<u>151–600 ac or dc</u>	<u>900 mm (3 ft)</u>	<u>1.0 m (3 ft 6 in.)</u>	<u>1.2 m (4 ft)</u>

<u>Nominal Voltage to Ground</u>	<u>Minimum Clear Distance</u>		
	<u>Condition 1</u>	<u>Condition 2</u>	<u>Condition 3</u>
601–1000 ac or 601–1500 dc	900 mm (3 ft)	1.2 m (4 ft)	1.5 m (5 ft)

Note: Where the conditions are as follows:

Condition 1 — Exposed or enclosed live parts on one side of the working space and no exposed or enclosed live or grounded parts on the other side of the working space, or exposed or enclosed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2 — Exposed or enclosed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3 — Exposed or enclosed live parts on both sides of the working space.

(a) Dead-Front Assemblies. Working space shall not be required in the back or sides of assemblies, such as dead-front switchboards, switchgear, or motor control centers, where all connections and all renewable or adjustable parts, such as fuses or switches, are accessible from locations other than the back or sides. Where rear access is required to work on nonelectrical parts on the back of enclosed equipment, a minimum horizontal working space of 762 mm (30 in.) shall be provided.

(b) Existing Buildings. In existing buildings where electrical equipment is being replaced, Condition 2 working clearance shall be permitted between dead-front switchboards, switchgear, enclosed panelboards, or motor control centers located across the aisle from each other where conditions of maintenance and supervision ensure that written procedures have been adopted to prohibit equipment on both sides of the aisle from being open at the same time and qualified persons who are authorized will service the installation.

(2) Width of Working Space. The width of the working space in front of the electrical equipment shall be the width of the equipment or 762 mm (30 in.), whichever is greater. In all cases, the work space shall permit at least a 90-degree opening of equipment doors or hinged panels.

(3) Height of Working Space. The work space shall be clear and extend from the grade, floor, or platform to a height of 2.0 m (6½ ft) or the height of the equipment, whichever is greater. Within the height requirements of this section, other equipment or support structures, such as concrete pads, associated with the electrical installation and located above or below the electrical equipment shall be permitted to extend not more than 150 mm (6 in.) beyond the front of the electrical equipment.

Exception No. 1: On battery systems mounted on open racks, the top clearance shall comply with 480.10(D).

Exception No. 2: In existing dwelling units, service equipment or enclosed panelboards that do not exceed 200 amperes shall be permitted in spaces where the height of the working space is less than 2.0 m (6½ ft).

Exception No. 3: Meters that are installed in meter sockets shall be permitted to extend beyond the other equipment. The meter socket shall be required to follow the rules of this section.

(4) Limited Access. Where equipment likely to require examination, adjustment, servicing, or maintenance while energized is required by installation instructions or function to be located in a space with limited access, all of the following shall apply:

(1) Where equipment is installed above a lay-in ceiling, there shall be an opening not smaller than 559 mm × 559 mm (22 in. × 22 in.), or in a crawl space, there shall be an accessible opening not smaller than 559 mm × 762 mm (22 in. × 30 in.).

(2) The width of the working space shall be the width of the equipment enclosure or a minimum of 762 mm (30 in.), whichever is greater.

(3) All enclosure doors or hinged panels shall be capable of opening a minimum of 90 degrees.

(4) The space in front of the enclosure shall comply with the depth requirements of Table 300.10(A)(1) and shall be unobstructed to the floor by fixed cabinets, walls, or partitions. Space reductions in accordance with 300.10(A) shall be permitted. The maximum height of the working space shall be the height necessary to install the equipment in the limited space. A horizontal ceiling structural member or access panel shall be permitted in this space provided the location of weight-bearing structural members does not result in a side reach of more than 150 mm (6 in.) to work within the enclosure.

(5) Separation from High-Voltage Equipment. Where switches, cutouts, or other equipment operating at 1000 volts ac, 1500 volts dc, nominal, or less are installed in a vault, room, or enclosure where there are exposed live parts or exposed wiring operating over 1000 volts ac, 1500 volts dc, nominal,

unless modified by other articles in Chapter 3 -{

the high-voltage equipment shall be effectively separated from the space occupied by the equipment operating at 1000 volts ac, 1500 volts dc, nominal, or less by a suitable partition, fence, or screen.

(6) Grade, Floor, or Working Platform. The grade, floor, or platform in the required working space shall be kept clear and as level and flat as practical for the entire required depth and width of the working space.

(B) Clear Spaces. Working space required by this section shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded.

(C) Entrance to and Egress from Working Space.

(1) Minimum Required. At least one entrance of sufficient area shall be provided to give access to and egress from working space about electrical equipment.

(2) Large Equipment. For large equipment that contains OCPDs, switching devices, or control devices, there shall be one entrance to and egress from the required working space not less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high at each end of the working space. This requirement shall apply to either of the following conditions:

(1) For equipment rated 1200 amperes or more and over 1.8 m (6 ft) wide

(2) For disconnecting means installed in accordance with 225.33(A) or 230.71(B) where the combined ampere rating is 1200 amperes or more and where the combined width is over 1.8 m (6 ft)

A single entrance to and egress from the required working space shall be permitted where either of the conditions in 300.10(C)(2)(a) or 300.10(C)(2)(b) is met.

(a) Unobstructed Egress. Where the location permits a continuous and unobstructed way of egress travel, a single entrance to the working space shall be permitted.

(b) Extra Working Space. Where the depth of the working space is twice that required by 300.10(A)(1), a single entrance shall be permitted. It shall be located such that the distance from the equipment to the nearest edge of the entrance is not less than the minimum clear distance specified in Table 300.10(A)(1) for equipment operating at that voltage and in that condition.

(3) Personnel Doors. Where equipment rated 800 amperes or more that contains OCPDs, switching devices, or control devices is installed and there are personnel doors intended for entrance to and egress from the working space less than 7.6 m (25 ft) from the nearest edge of the working space, the doors shall open at least 90 degrees in the direction of egress and be equipped with listed panic hardware or listed fire exit hardware.

Informational Note: See UL 305, Standard For Panic Hardware, for additional information on panic hardware, and see UL 10C, Standard for Safety for Positive Pressure Fire Tests of Door Assemblies, for additional information.

(D) Illumination. Illumination shall be provided for all working spaces about service equipment, switchboards, switchgear, enclosed panelboards, or motor control centers installed indoors. Control of all luminaires by automatic means shall not be permitted for the working space. Additional lighting outlets shall not be required where the work space is illuminated by an adjacent light source or as permitted by 210.70(A)(1) Exception No. 1 for switched receptacles.

(E) Dedicated Equipment Space. All service equipment, switchboards, switchgear, enclosed panelboards, and motor control centers shall be located in dedicated spaces and protected from damage.

Exception: Control equipment that by its very nature or because of other rules of the code must be adjacent to or within sight of its operating machinery shall be permitted in those locations.

(1) Indoor. Indoor installations shall comply with 300.10(E)(1)(a) through 300.10(E)(1)(d).

(a) Dedicated Electrical Space. The space equal to the width and depth of the equipment and extending from the floor to a height of 1.8 m (6 ft) above the equipment or to the structural ceiling, whichever is lower, shall be dedicated to the electrical installation. No piping, ducts, leak protection apparatus, or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Suspended ceilings with removable panels shall be permitted within the 1.8 m (6 ft) zone.

(b) Foreign Systems. The area above the dedicated space required by 300.10(E)(1)(a) shall be permitted to contain foreign systems, provided protection is installed to avoid damage to the electrical equipment from condensation, leaks, or breaks in such foreign systems.

(c) Sprinkler Protection. Sprinkler protection shall be permitted for the dedicated space where the piping complies with this section.

(d) Suspended Ceilings. A dropped, suspended, or similar ceiling that does not add strength to the building structure shall not be considered a structural ceiling.

(2) Outdoor. Outdoor installations shall comply with 300.10(E)(2)(a) through 300.10(E)(2)(c).

(a) Installation Requirements. Outdoor electrical equipment shall be the following:

(1) Installed in identified enclosures

(2) Protected from accidental contact by unauthorized personnel or by vehicular traffic

(3) Protected from accidental spillage or leakage from piping system

(b) Work Space. The working clearance space shall include the zone described in 300.10(A). No architectural appurtenance or other equipment shall be located in this zone.

(c) Dedicated Equipment Space. The space equal to the width and depth of the equipment, and extending from grade to a height of 1.8 m (6 ft) above the equipment, shall be dedicated to the electrical installation. No piping or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Structural overhangs or roof extensions shall be permitted in this zone.

(F) Locked Electrical Equipment Rooms or Enclosures. Electrical equipment rooms or enclosures housing electrical apparatus that are controlled by locks shall be considered accessible to qualified persons.

PART III. Wiring Methods and Materials

300.20 General.

(A) Covered. The requirements of Article 300 Part III covers general requirements for wiring methods and materials for all wiring installations unless modified elsewhere in this code.

(B) Not Covered.

~~This article does~~ The requirements of Article 300 Part III does not cover the following:

- (1) Class 2 circuits, Class 3 circuits, Class 4 circuits, optical fiber systems, communications systems, antenna systems, community antenna systems, network-powered broadband communications systems, premises-powered broadband communications systems, and power-limited fire alarm systems
- (2) Conductors that form an integral part of equipment, such as motors, controllers, motor control centers, or factory-assembled control equipment or listed utilization equipment

300.4-21 Limitations.

~~(A)~~

~~Voltage.~~

~~Wiring methods specified in Chapter 3 shall be used for 1000 volts ac, 1500 volts dc, nominal, or less where not specifically limited elsewhere in Chapter 3. They shall be permitted for over 1000 volts ac, 1500 volts dc, nominal, where specifically permitted elsewhere in this code.~~

~~(B) Temperature.~~

~~Temperature limitation of conductors shall be in accordance with 310.14(A)(3) .~~

~~(B)~~ **(B)** Damaged Conductors and Wiring Methods.

Conductors and wiring methods that are no longer suitable for use due to damage, such as overheating, fire damage, corrosive influences, or water, shall be replaced.

Informational Note No. 1: See NEMA GD 1-2019, *Evaluating Water-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by water.

Informational Note No. 2: See NEMA GD 2-2021, *Evaluating Fire- and Heat-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by fire or heat.

NOTE: Sections 300.5 – 300.27 to be renumbered to Sections 300.22 – 300.43

300.5 Conductors.

(A) Single Conductors.

Single conductors specified in Table 310.4(1) shall only be permitted where installed as part of a recognized wiring method specified in Chapter 3.

Exception: Individual conductors shall be permitted where installed as separate overhead conductors in accordance with 225.6.

(B) Conductors of the Same Circuit.

All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors and bonding conductors shall be contained within the same raceway, conduit body, auxiliary gutter, cable tray, cablebus assembly, trench, cable, or cord unless otherwise permitted in accordance with 300.5(B)(1) through 300.5(B)(4).

(1) Paralleled Installations.

Conductors shall be permitted to be run in parallel in accordance with 310.10(G). The requirement to run all circuit conductors within the same raceway, auxiliary gutter, cable tray, trench, cable, or cord shall apply separately to each portion of the paralleled installation, and the equipment grounding conductors shall comply with 250.122. Connections, taps, or extensions made from paralleled conductors shall connect to all conductors of the paralleled set, grounded and ungrounded, as applicable. Parallel runs in cable trays shall comply with 392.20(C).

Exception: Conductors installed in nonmetallic raceways run underground shall be permitted to be arranged as isolated phase, neutral, and grounded conductor installations. The raceways shall be installed in close proximity, and the isolated phase, neutral, and grounded conductors shall comply with 300.22(B).

(2) Grounding and Bonding Conductors.

Equipment grounding conductors shall be permitted to be installed outside a raceway or cable assembly in accordance with 250.130(C) for certain existing installations or in accordance with 250.134 Exception No. 2 for dc circuits. Equipment bonding conductors shall be permitted to be installed on the outside of raceways in accordance with 250.102(E).

(3) Nonferrous Wiring Methods.

Conductors in wiring methods with a nonmetallic or other nonmagnetic sheath, where run in different raceways, auxiliary gutters, cable trays, trenches, cables, or cords, shall comply with 300.22(B). Conductors in single-conductor Type MI cable with a nonmagnetic sheath shall comply with 332.31. Conductors of single-conductor Type MC cable with a nonmagnetic sheath shall comply with 330.31, 330.116, and 300.22(B).

(4) Column-Width Panelboards.

Where an auxiliary gutter runs between a column-width panelboard and a pull box, and the pull box includes neutral terminations, the neutral conductors of circuits supplied from the panelboard shall be permitted to originate in the pull box.

(C) Conductors of Different Systems.

(1) 1000 Volts ac, 1500 volts dc, Nominal, or Less.

(a) *Insulation Voltage Rating.* Conductors of ac and dc circuits rated 1000 volts ac, 1500 volts dc, nominal, or less shall be permitted to occupy the same equipment wiring enclosure, cable, or raceway. All conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway.

(b) *Electric-Discharge Lamps.* Secondary wiring to electric-discharge lamps of 1000 volts ac, 1500 volts dc, nominal, or less, if insulated for the secondary voltage involved, shall be permitted to occupy the same luminaire, sign, or outline lighting enclosure as the branch-circuit conductors.

Informational Note No. 1: See 722.15 for Class 2 and Class 3 circuit conductors.

Informational Note No. 2: See 722.15 for Class 4 circuit conductors.

Informational Note No. 3: See 690.31(B) for photovoltaic source and output circuits.

(2) Over 1000 Volts ac, 1500 Volts dc, Nominal.

Conductors of circuits rated over 1000 volts ac or 1500 volts dc shall not occupy the same equipment wiring enclosure, cable, or raceway with conductors of circuits rated 1000 volts ac, 1500 volts dc, nominal, or less unless permitted in accordance with 305.13(B).

300.6 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 that the edge of the hole is not less than 32 mm (1¼ in.) from the edges of the wood member. Where this distance cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate(s) or bushing(s) at least 1.6 mm (⅙ in.) thick, and of appropriate length and width, installed to cover the area of the wiring.

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

Exception No. 2: A listed and marked steel plate less than 1.6 mm (⅙ 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 from penetration by nails or screws by a steel plate at least 1.6 mm ($\frac{1}{16}$ 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 ($\frac{1}{16}$ 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 ($\frac{1}{16}$ in.) in thickness shall be used to protect the cable or tubing.

Exception: A listed and marked steel plate less than 1.6 mm ($\frac{1}{16}$ 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 ($1\frac{1}{4}$ 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 ($\frac{1}{16}$ 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 ($\frac{1}{16}$ in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.

(E) Wiring Methods and Materials in or Under Roof Decking.

Wiring methods and materials installed under roof decking shall be installed to maintain not less than 38 mm (1½ in.) separation from the lowest surface of the roof decking. Wiring methods shall not be installed in concealed locations in metal-corrugated, sheet decking-type roofs.

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

Exception No. 1: Rigid metal conduit and intermediate metal conduit, with listed steel or malleable iron fittings and boxes, shall not be required to comply with 300.6(E).

Exception No. 2: The 38 mm (1½ in.) spacing shall not be required where metal-corrugated sheet roof decking is covered with a minimum thickness 50 mm (2 in.) concrete slab, measured from the top of the corrugated roofing.

Exception No. 3: Wiring methods and materials shall be permitted in concealed locations where encased in concrete not less than 50 mm (2 in.) thick. Boxes and conduit bodies shall be installed in accordance with 314.29.

(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 (1¼-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 PVC conduit, RTRC, 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.

300.7 Underground Installations.

(A) Minimum Cover Requirements.

Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum cover requirements of Table 300.7(A).

Table 300.7(A) Minimum Cover Requirements, 0 to 1000 Volts ac, 1500 Volts dc, Nominal, Burial in Millimeters (Inches)

<u>Location of Wiring Method or Circuit</u>	<u>Type of Wiring Method or Circuit</u>									
	<u>Column 1</u>		<u>Column 2</u>		<u>Column 3</u>		<u>Column 4</u>		<u>Column 5</u>	
	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>
All locations not specified below	600	24	150	6	450	18	300	12	150 ^{1,2}	6 ^{1,2}
In trench below 50 mm (2 in.) thick concrete or equivalent	450	18	150	6	300	12	150	6	150	6
Under a building	0	0	0	0	0	0	0	0	0	0
			(in raceway or Type MC or Type MI cable identified for direct burial)	-	-	-	-			(in raceway or Type MC or Type MI cable identified for direct burial)
Under minimum of 102 mm (4 in.) thick concrete exterior slab with no vehicular traffic and the slab	450	18	100	4	100	4	150	6	150	6
							(direct burial)			(direct burial)

extending not less than 152 mm (6 in.) beyond the underground installation						100 4 (in raceway)	100 4 (in raceway)
Under streets, highways, roads, alleys, driveways, and parking lots	600 24	600 24	600 24	600 24	600 24	600 24	600 24
One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes	450 18	450 18	450 18	450 18	300 12	450 18	450 18
In or under airport runways, including adjacent areas where trespassing is prohibited	450 18	450 18	450 18	450 18	450 18	450 18	450 18

¹A lesser depth shall be permitted where specified in the installation instructions of a listed low-voltage lighting system.

²A depth of 150 mm (6 in.) shall be permitted for pool, spa, and fountain lighting, installed in a nonmetallic raceway, limited to not more than 30 volts where part of a listed low-voltage lighting system.

Notes:

1. Cover shall be defined as the shortest distance in mm (in.) measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.
2. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 50 mm (2 in.) thick.
3. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.
4. Where one of the wiring method types listed in Columns 1 through 3 is used for one of the circuit types in Columns 4 and 5, the shallowest depth of burial shall be permitted.
5. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in a metal raceway, or a nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 50 mm (2 in.) of concrete extending down to rock.
6. Directly buried electrical metallic tubing (EMT) shall comply with 358.10.

(B) Wet Locations.

The interior of enclosures or raceways installed underground shall be considered to be a wet location. Insulated conductors and cables installed in these enclosures or raceways in underground installations shall comply with 310.10(C).

(C) Underground Cables and Conductors Under Buildings.

Underground cable and conductors installed under a building shall be in a raceway.

Exception No. 1: Type MI cable shall be permitted under a building without installation in a raceway where embedded in concrete, fill, or other masonry in accordance with 332.10(6) or in underground runs where suitably protected against physical damage and corrosive conditions in accordance with 332.10(10).

Exception No. 2: Type MC cable listed for direct burial or concrete encasement shall be permitted under a building without installation in a raceway in accordance with 330.10(A)(5) and in wet locations in accordance with 330.10(A)(11).

(D) Protection from Damage.

Conductors and cables shall be protected from damage in accordance with 300.7(D)(1) through 300.7(D)(4).

(1) Emerging from Grade.

Direct-buried conductors and cables emerging from grade and specified in Columns 1 and 4 of Table 300.7(A) shall be protected by enclosures or raceways extending from the minimum cover distance below grade required by 300.7(A) to a point at least 2.5 m (8 ft) above finished grade. In no case shall the protection be required to exceed 450 mm (18 in.) below finished grade.

(2) Conductors Entering Buildings.

Conductors entering a building shall be protected to the point of entrance.

(3) Service Conductors and Raceways.

Direct buried service conductors and raceways containing service conductors that are not encased in concrete and that are buried 450 mm (18 in.) or more below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (12 in.) above the underground installation.

(4) Enclosure or Raceway Damage.

Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in electrical metallic tubing, rigid metal conduit, intermediate metal conduit, RTRC-XW, Schedule 80 PVC conduit, or equivalent.

(E) Splices and Taps.

Direct-buried conductors or cables shall be permitted to be spliced or tapped without the use of splice boxes. The splices or taps shall be made in accordance with 110.14(B).

(F) Backfill.

Backfill that contains large rocks, paving materials, cinders, large or sharply angular substances, or corrosive material shall not be placed in an excavation where materials might damage raceways, cables, conductors, or other substructures or prevent adequate compaction of fill or contribute to corrosion of raceways, cables, or other substructures.

Where necessary to prevent physical damage to the raceway, cable, or conductor, protection shall be provided in the form of granular or selected material, suitable running boards, suitable sleeves, or other approved means.

(G) Raceway Seals.

Conduits or raceways through which moisture might contact live parts shall be sealed or plugged at either or both ends. Spare or unused raceways shall also be sealed. Sealants shall be identified for use with the cable insulation, conductor insulation, bare conductor, shield, or other components.

Informational Note: Presence of hazardous gases or vapors might also necessitate the sealing of underground conduits or raceways entering buildings.

(H) Bushing.

A bushing, or terminal fitting, with an integral bushed opening shall be used at the end of a conduit or other raceway that terminates underground where the conductors or cables emerge as a direct burial wiring method. A seal incorporating the physical protection characteristics of a bushing shall be permitted to be used in lieu of a bushing.

(I) Conductors of the Same Circuit.

All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors shall be installed in the same raceway or cable or shall be installed in close proximity in the same trench.

Exception No. 1: Conductors shall be permitted to be installed in parallel in raceways, multiconductor cables, or direct-buried single conductor cables. Each raceway or multiconductor cable shall contain all conductors of the same circuit, including equipment grounding conductors. Each direct-buried single conductor cable shall be located in close proximity in the trench to the other single conductor cables in the same parallel set of conductors in the circuit, including equipment grounding conductors.

Exception No. 2: Isolated phase, polarity, grounded conductor, and equipment grounding and bonding conductor installations shall be permitted in nonmetallic raceways or cables with a nonmetallic covering or nonmagnetic sheath in close proximity where conductors are paralleled as permitted in 310.10(G), and where the conditions of 300.22(B) are met.

(J) Earth Movement.

Where direct-buried conductors, raceways, or cables are subject to movement by settlement or frost, direct-buried conductors, raceways, or cables shall be arranged so as to prevent damage to the enclosed conductors, to raceways, or to equipment connected to the raceways.

Informational Note: This section recognizes "S" loops in underground direct burial cables and conductors to raceway transitions, expansion fittings in raceway risers to fixed equipment, and, generally, the provision of flexible connections to equipment subject to settlement or frost heaves.

(K) Directional Boring.

Cables or raceways installed using directional boring equipment shall be approved for the purpose.

300.8 Protection Against Corrosion and Deterioration.

Raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, fittings, supports, and support hardware shall be of materials suitable for the environment in which they are to be installed. For the purposes of this section, enclosures shall not include fences or walls surrounding electrical equipment.

(A) Ferrous Metal Equipment.

Ferrous metal raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall be suitably protected against corrosion inside and outside by a coating of approved corrosion-resistant material. Where corrosion protection is necessary and the conduit is threaded anywhere other than at the factory where the product is listed, the threads shall be coated with an approved electrically conductive, corrosion-resistant compound.

Exception: Stainless steel shall not be required to have protective coatings.

(1) Protected from Corrosion Solely by Enamel.

Where protected from corrosion solely by enamel, ferrous metal raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall not be used outdoors or in wet locations as described in 300.8(D).

(2) Organic Coatings on Boxes or Cabinets.

Where boxes, cabinets, or enclosures have an approved system of organic coatings and are marked "Raintight," "Rainproof," or "Outdoor Type," they shall be permitted outdoors.

(3) In Concrete or in Direct Contact with the Earth.

Ferrous metal raceways, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall be permitted to be installed in concrete, in direct contact with the earth, or in areas subject to severe corrosive influences where made of material approved for the condition or where provided with corrosion protection approved for the condition.

(B) Aluminum Metal Equipment.

Aluminum raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware embedded or encased in concrete or in direct contact with the earth shall be provided with supplementary corrosion protection.

(C) Nonmetallic Equipment.

Nonmetallic raceways, cable trays, cablebus, auxiliary gutters, boxes, cables with a nonmetallic outer jacket and internal metal armor or jacket, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall be made of material approved for the condition and shall comply with 300.8(C)(1) and 300.8(C)(2) as applicable to the specific installation.

(1) Exposed to Sunlight.

Where exposed to sunlight, the materials shall be listed as sunlight resistant or shall be identified as sunlight resistant.

(2) Chemical Exposure.

Where subject to exposure to chemical solvents, vapors, splashing, or immersion, materials or coatings shall either be inherently resistant to chemicals based on their listing or be identified for the specific chemical reagent.

(D) Indoor Wet Locations.

In portions of dairy processing facilities, laundries, canneries, and other indoor wet locations, and in locations where walls are frequently washed or where there are surfaces of absorbent materials, such as damp paper or wood, the entire wiring system, where installed exposed, including all boxes, cabinets, enclosures, fittings, raceways, and cable used therewith, shall be mounted so that there is at least a 6 mm (1/4 in.) airspace between it and the wall or supporting surface.

Exception: Nonmetallic raceways, boxes, and fittings shall be permitted to be installed without the airspace on a concrete, masonry, tile, or similar surface.

Informational Note: In general, areas where acids and alkali chemicals are handled and stored might present such corrosive conditions, particularly when wet or damp. Severe corrosive conditions might also be present in portions of meatpacking plants, tanneries, glue houses, and some stables; in installations immediately adjacent to a seashore and swimming pool areas; in areas where chemical deicers are used; and in storage cellars or rooms for hides, casings, fertilizer, salt, and bulk chemicals.

300.9 Raceways Exposed to Different Temperatures.

(A) Condensation.

Where portions of a raceway or sleeve are known to be subjected to different temperatures, and where condensation is known to be a problem, as in cold storage areas of buildings or where passing from the interior to the exterior of a building, the raceway or sleeve shall comply with 300.9(A)(1) or 300.9(A)(2).

- (1) *Sealants.* The raceway or sleeve shall be sealed to prevent the circulation of warm air to a colder section of the raceway or sleeve. Sealants shall be identified for use with cable insulation, conductor insulation, a bare conductor, a shield, or other components. An explosionproof seal shall not be required for this purpose.
- (2) *Other Approved Means.* The use of a listed fitting or other approved means identified for the purpose of preventing condensation and the circulation of warm air shall be permitted.

Informational Note: An example of a fitting for the prevention of condensation could be a thermal break coupling.

(B) Expansion, Expansion-Deflection, and Deflection Fittings.

Raceways shall be provided with expansion, expansion-deflection, or deflection fittings where necessary to compensate for thermal expansion, deflection, and contraction.

Informational Note No. 1: Table 352.44 and Table 355.44 provide the expansion information for polyvinyl chloride (PVC) and for reinforced thermosetting resin conduit (RTRC), respectively. A nominal number for steel conduit can be determined by multiplying the expansion length in Table 352.44 by 0.20. The coefficient of expansion for steel electrical metallic tubing, intermediate metal conduit, and rigid metal conduit is 1.170×10^{-5} (0.0000117 mm per mm of conduit for each °C in temperature change) [0.650×10^{-5} (0.0000065 in. per in. of conduit for each °F in temperature change)].

A nominal number for aluminum conduit and aluminum electrical metallic tubing can be determined by multiplying the expansion length in Table 352.44 by 0.40. The coefficient of expansion for aluminum electrical metallic tubing and aluminum rigid metal conduit is 2.34×10^{-5} (0.0000234 mm per mm of conduit for each °C in temperature change) [1.30×10^{-5} (0.000013 in. per in. of conduit for each °F in temperature change)].

Informational Note No. 2: See NEMA FB 2.40-2019, *Installation Guidelines for Expansion and Expansion/Deflection Fittings*, for further information on expansion and expansion deflection fittings.

300.10 Installation of Conductors With Other Systems.

Raceways or cable trays containing electrical conductors or cables shall not contain any pipe, tube, or other means for steam, water, air, gas, drainage, or any service other than electrical.

300.11 Raceways in Wet Locations Above Grade.

(A) General.

Where raceways are installed in wet locations above grade, the interior of these raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceways in wet locations above grade shall comply with 310.10(C).

(B) Drainage.

Raceways installed in wet locations above grade shall be arranged to drain.

300.12 Electrical Continuity of Metal Raceways, Cable Armor, and Enclosures.

Metal raceways, cable armor, and other metal enclosures for conductors shall be metallically joined together into a continuous electrical conductor and shall be connected to all boxes, fittings, and cabinets to provide an effective ground fault current path.

Exception No. 1: Short sections of raceways used to provide support or protection of cable assemblies from physical damage shall not be required to be made electrically continuous.

Exception No. 2: Equipment enclosures to be isolated, as permitted by 250.96(B), shall not be required to be metallically joined to the metal raceway.

300.13 Securing and Supporting.

(A) Secured in Place.

Raceways, cable assemblies, boxes, cabinets, and fittings shall be securely fastened in place.

(B) Wiring Systems Installed Above Suspended Ceilings.

(1) General.

Wiring shall not be secured to or supported by the ceiling grid system, including the ceiling support wires.

(2) Independent Support Wires.

Independent support wires and associated fittings shall be permitted to provide support for wiring systems installed above a suspended ceiling if the independent support wires comply with all the following:

- (1) The independent support wires are installed in addition to the ceiling grid support wires.
- (2) The independent support wires are distinguishable by color, tagging, or other means from those that are part of the ceiling system.
- (3) The independent support wires are secured at both ends.
- (4) The independent support wires provide secure support.

Exception No. 1: The ceiling support system shall be permitted to support wiring and equipment that have been tested as part of the fire-rated assembly.

Informational Note: See ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, for one method of testing to determine fire rating.

Exception No. 2: The ceiling system shall be permitted to support branch-circuit wiring and associated equipment if installed in accordance with the ceiling system manufacturer's instructions.

(C) Raceways Used as Means of Support.

Raceways shall be used as a means of support for other raceways, cables, or nonelectrical equipment only under any of the following conditions:

- (1) If the raceway or means of support is identified as a means of support
- (2) If the raceway contains power supply conductors for electrically controlled equipment and is used to support Class 2 or Class 3 circuit conductors or cables that are solely for the purpose of connection to the equipment control circuits
- (3) If the raceway is used to support boxes or conduit bodies in accordance with 314.23 or to support luminaires in accordance with 410.36(E)
- (4) If the raceway is used to support an equipment bonding jumper that is associated with the circuit conductors within the raceway

(D) Cables and Conductors Not Used as Means of Support.

Cable and conductor wiring methods shall not be used as a means of support for other cables, conductors, raceways, or nonelectrical equipment.

(E) Cable Ties Used as Means of Securement and Support.

(1) Cable Ties.

Cable ties used as a means for securement and support for cable, flexible conduit, and flexible tubing shall be listed and identified for securement and support.

(2) Cable Tie Fixing Devices.

If a cable tie fixing device is installed, the cable tie fixing device shall be listed and identified for securement and support.

Informational Note: Type(s) 1, 11, 2, 21, 2S, or 21S cable tie and cable tie fixing device type designations are evaluated for use in cable management applications. Type(s) 2S or 21S are also evaluated for securing and supporting cable, flexible conduit, and flexible tubing.

300.14 Mechanical Continuity — Raceways and Cables.

Raceways, cable armors, and cable sheaths shall be continuous between cabinets, boxes, conduit bodies, fittings, wireways, or other enclosures or outlets. Unless specifically permitted elsewhere in this code, raceways and cable assemblies shall be mechanically secured to boxes, fittings, cabinets, and other enclosures.

Exception No. 1: Short sections of raceways used to provide support or protection of cable assemblies from physical damage shall not be required to be mechanically continuous.

Exception No. 2: Raceways and cables installed into the bottom of open bottom equipment, such as switchboards, motor control centers, and floor or pad-mounted transformers, shall not be required to be mechanically secured to the equipment.

300.15 Mechanical and Electrical Continuity — Conductors.

(A) General.

Conductors in raceways shall be continuous between outlets, boxes, devices, and so forth. There shall be no splice or tap within a raceway unless permitted by 300.17, 368.56(A), 376.56, 378.56, 384.56, 386.56, 388.56, or 390.56.

(B) Device Removal.

In multiwire branch circuits, the continuity of a grounded conductor shall not depend on device connections such as lampholders, receptacles, and so forth where the removal of such devices would interrupt the continuity.

300.16 Length of Free Conductors at Outlets, Junctions, and Switch Points.

(A) General.

At least 150 mm (6 in.) of free conductor, measured from the point in the box where it emerges from its raceway or cable sheath, shall be left at each outlet, junction, and switch point for splices or the connection of luminaires or devices. The 150 mm (6 in.) free conductor shall be permitted to be spliced or unspliced.

(B) Openings Smaller Than 200 mm (8 in.).

If the opening to an outlet, junction, or switch point is less than 200 mm (8 in.) in any dimension, each conductor shall comply with all of the following:

- (1) Each conductor shall have free conductor in accordance with 300.16(A).
- (2) Each conductor shall be long enough to extend at least 75 mm (3 in.) outside the opening.

Exception: Conductors that are not spliced or terminated at the outlet, junction, or switch point shall not be required to comply with 300.16.

300.17 Boxes, Conduit Bodies, or Fittings — Where Required.

A box shall be installed at each outlet and switch point for concealed knob-and-tube wiring.

Fittings and connectors shall be used only with the specific wiring methods for which they are designed and listed.

Where the wiring method is conduit, tubing, Type AC cable, Type MC cable, Type MI cable, nonmetallic-sheathed cable, or other cables, a box or conduit body shall be installed at each outlet point, switch point, conductor splice point, conductor junction point, conductor termination point, wiring method transition point, or conductor pull point, unless otherwise permitted in 300.17(A) through 300.17(L).

(A) Wiring Methods with Interior Access.

A box or conduit body shall not be required for each splice, junction, switch, pull, termination, or outlet points in wiring methods with removable covers, such as wireways, multioutlet assemblies, auxiliary gutters, and surface raceways. The covers shall be accessible after installation.

(B) Equipment.

An integral junction box or wiring compartment as part of approved equipment shall be permitted in lieu of a box.

(C) Protection.

A box or conduit body shall not be required where cables enter or exit from conduit or tubing that is used to provide cable support or protection against physical damage. A fitting shall be provided on the end(s) of the conduit or tubing to protect the cable from abrasion.

(D) Type MI Cable.

A box or conduit body shall not be required where accessible fittings are used for straight-through splices in mineral-insulated metal-sheathed cable.

(E) Integral Enclosure.

A wiring device with integral enclosure identified for the use, having brackets that securely fasten the device to walls or ceilings of conventional on-site frame construction, for use with nonmetallic-sheathed cable, shall be permitted in lieu of a box or conduit body.

Informational Note: See 334.30(C); 545.10; 550.17(I); 551.47(E) Exception No. 1; and 552.48(E) Exception No. 1.

(F) Fitting.

A fitting identified for the use shall be permitted in lieu of a box or conduit body where conductors are not spliced or terminated within the fitting. If used as a pull point, the fitting shall be accessible after installation.

(G) Direct-Buried Conductors and Cables.

As permitted in 300.7(E), a box or conduit body shall not be required for splices and taps in direct-buried conductors and cables.

(H) Insulated Devices.

As permitted in 334.40(B), a box or conduit body shall not be required for insulated devices supplied by nonmetallic-sheathed cable.

(I) Enclosures.

A box or conduit body shall not be required where a splice, switch, terminal, or pull point is in a cabinet or cutout box, in an enclosure for a switch or OCPD as permitted in 312.11, in a motor controller as permitted in 430.10(A), or in a motor control center.

(J) Luminaires.

A box or conduit body shall not be required where a luminaire is used as a raceway as permitted in 410.64.

(K) Embedded.

A box or conduit body shall not be required for splices where conductors are embedded as permitted in 424.40, 424.41(D), 426.22(C), 426.24(A), and 427.19(A).

(L) Manholes and Handhole Enclosures.

A box or conduit body shall not be required for conductors in manholes or handhole enclosures, except where connecting to electrical equipment. The installation shall comply with Article 110 Part V for manholes and 314.30 for handhole enclosures.

300.18 Raceway or Cable to Open or Concealed Wiring.

(A) Box, Conduit Body, or Fitting.

A box, conduit body, or terminal fitting having a separately bushed hole for each conductor shall be used wherever a change is made from conduit, electrical metallic tubing, electrical nonmetallic tubing, nonmetallic-sheathed cable, Type AC cable, Type MC cable, or mineral-insulated, metal-sheathed cable and surface raceway wiring to open wiring or to concealed knob-and-tube wiring. A fitting used for this purpose shall contain no taps or splices and shall not be used at luminaire outlets. A conduit body used for this purpose shall contain no taps or splices unless it complies with 314.16(C)(2).

(B) Bushing.

A bushing shall be permitted in lieu of a box or terminal where the conductors emerge from a raceway and enter or terminate at equipment, such as open switchboards, unenclosed control equipment, or similar equipment. The bushing shall be of the insulating type for other than lead-sheathed conductors.

300.19 Number of Conductors and Cables in Raceway.

(A) Raceway Fill.

The number and size of conductors and cables in a complete raceway shall not exceed the allowable percentage fill specified in Chapter 9 Table 1.

(B) Metric Designators and Trade Sizes.

Metric designators and trade sizes for conduit, tubing, and associated fittings and accessories shall be in accordance with Table 300.19(B).

Table 300.19(B) Metric Designators and Trade Sizes

Metric Designator	Trade Size
12	$\frac{3}{8}$
16	$\frac{1}{2}$
21	$\frac{3}{4}$
27	1
35	$1\frac{1}{4}$
41	$1\frac{1}{2}$
53	2
63	$2\frac{1}{2}$
78	3
91	$3\frac{1}{2}$
103	4
129	5
155	6
205	8

Note: The metric designators and trade sizes are for identification purposes only and are not actual dimensions.

300.20 Raceway Installations.

(A) Complete Runs.

Raceways shall be installed complete between outlet, junction, or splicing points prior to the installation of conductors or cables, unless permitted by one of the following:

- (1) Busways
- (2) Listed manufactured assemblies in accordance with 604.100
- (3) Exposed raceways having hinged or removable covers
- (4) Raceways installed without terminating connections at the equipment, where required to facilitate the installation of utilization equipment
- (5) Prewired raceway assemblies, only where specifically permitted in the code for the applicable wiring method
- (6) Short sections of raceways used to contain conductors or cable assemblies for protection from physical damage

(B) Welding.

Metal raceways shall not be supported, terminated, or connected by welding to the raceway.

300.21 Supporting Conductors in Vertical Raceways.

(A) Spacing Intervals — Maximum.

Conductors in vertical raceways shall be supported if the vertical rise exceeds the values in Table 300.21(A). At least one support method shall be provided for each conductor at the top of the vertical raceway or as close to the top as practical. Intermediate supports shall be provided as necessary to limit supported conductor lengths to not greater than those values specified in Table 300.21(A).

Exception: Steel wire armor cable shall be supported at the top of the riser with a cable support that clamps the steel wire armor. A safety device shall be permitted at the lower end of the riser to hold the cable in the event there is slippage of the cable in the wire-armored cable support. Additional wedge-type supports shall be permitted to relieve the strain on the equipment terminals caused by expansion of the cable under load.

Table 300.21(A) Spacings for Conductor Supports

<u>Conductor Size</u>	<u>Support of Conductors in Vertical Raceways</u>	<u>Conductors</u>			
		<u>Copper</u>		<u>Aluminum or Copper-Clad Aluminum</u>	
		<u>m</u>	<u>ft</u>	<u>m</u>	<u>ft</u>
18 AWG through 8 AWG	Not greater than	30	100	30	100
6 AWG through 1/0 AWG	Not greater than	30	100	60	200
2/0 AWG through 4/0 AWG	Not greater than	25	80	55	180
Over 4/0 AWG through 350 kcmil	Not greater than	18	60	41	135
Over 350 kcmil through 500 kcmil	Not greater than	15	50	36	120
Over 500 kcmil through 750 kcmil	Not greater than	12	40	28	95
Over 750 kcmil	Not greater than	11	35	26	85

(B) Fire-Resistive Cables and Conductors.

Support methods and spacing intervals for fire-resistive cables and conductors shall comply with any restrictions provided in the listing of the electrical circuit protective system or fire-resistive cable system used and in no case shall exceed the values in Table 300.21(A).

(C) Support Methods.

One of the following methods of support shall be used:

- (1) Clamping devices constructed of or employing insulating wedges inserted in the ends of the raceways. Where clamping of insulation does not adequately support the cable, the conductor also shall be clamped.
- (2) Inserting boxes at the required intervals in which insulating supports are installed and secured in an approved manner to withstand the weight of the conductors attached thereto, the boxes being provided with covers.
- (3) In junction boxes, deflecting the cables not less than 90 degrees and carrying them horizontally to a distance not less than twice the diameter of the cable, with the cables being carried on two or more insulating supports and additionally secured thereto by tie wires, if desired. Where this method is used, cables shall be supported at intervals not greater than 20 percent of the support spacing in Table 300.21(A).
- (4) Other approved means.

300.22 Induced Currents in Ferrous Metal Enclosures or Ferrous Metal Raceways.

(A) Conductors Grouped Together.

Where conductors carrying alternating current are installed in ferrous metal enclosures or ferrous metal raceways, they shall be arranged so as to avoid heating the surrounding ferrous metal by induction. To accomplish this, all phase conductors and, where used, the grounded conductor and all equipment grounding conductors shall be grouped together.

Exception No. 1: Equipment grounding conductors for certain existing installations shall be permitted to be installed separate from their associated circuit conductors where run in accordance with 250.130(C).

Exception No. 2: A single conductor shall be permitted to be installed in a ferromagnetic enclosure and used for skin-effect heating in accordance with 426.42 and 427.47.

(B) Individual Conductors.

Where a single conductor carrying alternating current passes through metal with magnetic properties, the inductive effect shall be minimized by either cutting slots in the metal between the individual holes through which the individual conductors pass or passing all the conductors in the circuit through an insulating wall sufficiently large for all of the conductors of the circuit.

Exception: In the case of circuits supplying vacuum or electric-discharge lighting systems or signs or X-ray apparatus, the currents carried by the conductors are so small that the inductive heating effect can be ignored where these conductors are placed in metal enclosures or pass through metal.

Informational Note: Because aluminum is not a magnetic metal, there will be no heating due to hysteresis; however, induced currents will be present. They will not be of sufficient magnitude to require grouping of conductors or special treatment in passing conductors through aluminum wall sections.

300.23 Spread of Fire or Products of Combustion.

Electrical installations in hollow spaces, vertical shafts, and ventilation or air-handling ducts shall be made so that the possible spread of fire or products of combustion will not be substantially increased. Openings around electrical penetrations into or through fire-resistant-rated walls, partitions, floors, or ceilings shall be firestopped using approved methods to maintain the fire resistance rating.

Informational Note: Directories of electrical construction materials published by qualified testing laboratories contain many listing installation restrictions necessary to maintain the fire-resistive rating of assemblies where penetrations or openings are made. Building codes also contain restrictions on membrane penetrations on opposite sides of a fire-resistance-rated wall assembly. An example is the 600-mm (24-in.) minimum horizontal separation that usually applies between boxes installed on opposite sides of the wall. Assistance in complying with the requirements of 300.23 can be found in building codes, fire resistance directories, and product listings.

300.24 Bends.

The total degree of bends in any combination of conduit or tubing wiring methods used for a single run shall not exceed 360 degrees between pull points.

300.25 Wiring in Ducts Not Used for Air Handling, Fabricated Ducts for Environmental Air, and Other Spaces for Environmental Air (Plenums).

The requirements of this section shall apply to the installation and uses of electrical wiring and equipment in ducts used for dust, loose stock, or vapor removal; ducts specifically fabricated for environmental air; and other spaces used for environmental air (plenums).

Informational Note: See Article 424 Part VI for requirements on duct heaters.

(A) Ducts for Dust, Loose Stock, or Vapor Removal.

No wiring systems of any type shall be installed in ducts used to transport dust, loose stock, or flammable vapors. No wiring system of any type shall be installed in any duct, or shaft containing only such ducts, used for vapor removal or for ventilation of commercial-type cooking equipment.

(B) Ducts Specifically Fabricated for Environmental Air.

Equipment, devices, and the wiring methods specified in this section shall be permitted within such ducts only if necessary for the direct action upon, or sensing of, the contained air. Where equipment or devices are installed and illumination is necessary to facilitate maintenance and repair, enclosed gasketed-type luminaires shall be permitted.

Only wiring methods consisting of Type MI cable without an overall nonmetallic covering, Type MC cable employing a smooth or corrugated impervious metal sheath without an overall nonmetallic covering, electrical metallic tubing, flexible metallic tubing, intermediate metal conduit, or rigid metal conduit without an overall nonmetallic covering shall be installed in ducts specifically fabricated to transport environmental air. Flexible metal conduit shall be permitted, in lengths not to exceed 1.2 m (4 ft), to connect physically adjustable equipment and devices permitted to be in these fabricated ducts. The connectors used with flexible metal conduit shall effectively close any openings in the connection.

Exception: Wiring methods and cabling systems, listed for use in other spaces used for environmental air (plenums), shall be permitted to be installed in ducts specifically fabricated for environmental air-handling purposes under both of the following conditions:

- (1) The wiring methods or cabling systems shall be permitted only if necessary to connect to equipment or devices associated with the direct action upon or sensing of the contained air.*
- (2) The total length of such wiring methods or cabling systems shall not exceed 1.2 m (4 ft).*

(C) Other Spaces Used for Environmental Air (Plenums).

This section shall apply to spaces not specifically fabricated for environmental air-handling purposes but used for air-handling purposes as a plenum. This section shall not apply to habitable rooms or areas of buildings, the prime purpose of which is not air handling.

Informational Note No. 1: The space over a hung ceiling used for environmental air-handling purposes is an example of the type of other space to which this section applies.

Informational Note No. 2: See NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, and other mechanical codes for information on how the term *other spaces used for environmental air (plenum)*, as used in this section, correlates with the use of the term *plenum* where the plenum is used for return air purposes, as well as some other air-handling spaces.

Exception: This section shall not apply to the joist or stud spaces of dwelling units where the wiring passes through such spaces perpendicular to the long dimension of such spaces.

(1) Wiring Methods.

(a) The wiring methods for other spaces used for environmental air shall be limited to the following:

- (2) Totally enclosed, nonventilated, insulated busway having no provisions for plug-in connections
- (3) Rigid metal conduit without an overall nonmetallic covering
- (4) Intermediate metal conduit without an overall nonmetallic covering
- (5) Electrical metallic tubing without an overall nonmetallic covering
- (6) Flexible metallic tubing
- (7) Flexible metal conduit
- (8) Type MI cable without an overall nonmetallic covering
- (9) Type MC cable without an overall nonmetallic
- (10) Type AC cable
- (11) Flexible bus systems that are specifically listed for use within an air-handling space
- (12) Other factory-assembled multiconductor control or power cable that is specifically listed for use within an air-handling space or listed prefabricated cable assemblies of metallic manufactured wiring systems without nonmetallic sheath

(m) Other types of cables, conductors, and raceways shall be permitted to be installed in any of the wiring methods in 300.25(C)(1)(a)(1) through 300.25(C)(1)(a)(11) or, where accessible, surface metal raceway or metal wireway with metal covers.

(n) Nonmetallic cable ties and other nonmetallic cable accessories used to secure and support cables shall be listed as having low smoke and heat release properties.

Informational Note: See UL 2043, *Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*, for one method of testing low smoke and heat release properties for nonmetallic cable ties and other nonmetallic cable accessories to determine a maximum peak optical density of 0.50 or less, an average optical density of 0.15 or less, and a peak heat release rate of 100 kW or less.

(2) Cable Tray Systems.

The requirements in 300.25(C)(2)(a) or 300.25(C)(2)(b) shall apply to the use of metallic cable tray systems in other spaces used for environmental air (plenums), where accessible.

(a) *Metal Cable Tray Systems.* Metal cable tray systems shall be permitted to support the wiring methods specified in 300.25(C)(1).

(b) *Solid Side and Bottom Metal Cable Tray Systems.* Solid side and bottom metal cable tray systems with solid metal covers shall be permitted to enclose wiring methods and cables not already covered in 300.25(C)(1) in accordance with 392.10(A) and 392.10(B).

(3) Equipment.

Electrical equipment with a metal enclosure, or electrical equipment with a nonmetallic enclosure listed for use within an air-handling space and having low smoke and heat release properties, and associated wiring material suitable for the ambient temperature shall be permitted to be installed in such other spaces unless prohibited elsewhere in this code.

Informational Note: See UL 2043, *Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*, for one method of testing low smoke and heat release properties to determine that the equipment exhibits a maximum peak optical density of 0.50 or less, an average optical density of 0.15 or less, and a peak heat release rate of 100 kW or less.

Exception: Integral fan systems shall be permitted where specifically identified for use within an air-handling space.

(D) Information Technology Equipment.

Where the installation complies with the special requirements specified in 645.5, electrical wiring in air-handling areas beneath raised floors for information technology equipment shall be permitted in accordance with 645.6(E).

300.26 Panels Designed to Allow Access.

Cables, raceways, and equipment installed behind panels designed to allow access, including suspended ceiling panels, shall be arranged and secured to allow the removal of panels and access to the equipment.

300.27 Exit Enclosures (Stair Towers).

Where an exit enclosure is required to have a fire resistance rating, only electrical wiring methods serving equipment permitted by the authority having jurisdiction in the exit enclosure shall be installed within the exit enclosure.

Exception: Where egress lighting is required on outside exterior doorways from the exit enclosure, luminaires shall be permitted to be supplied from the inside of the exit enclosure.

Informational Note: See NFPA 101, *Life Safety Code*, 7.1.3.2.1(10)(b) for more information.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Article_300_with_110_Requirements_Added.docx	WORD Version of Public Input	

Statement of Problem and Substantiation for Public Input

This Public Input is submitted on behalf of the High Voltage Task Group established by the Correlating Committee, consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Michael O'Connell, Eric Simmon, Kevin Arnold, Larry Wildermuth, Kyle Krueger, Eric Stromberg, Ken Crawford, Rob Roettgers, William Brown, and William Alexander.

While Chapter 1 is titled "General", the reorganization of the NEC, as detailed in Annex L of the 2026 Edition, places additional emphasis on alignment of requirements, where new Chapters 2, 3, and 4 will address requirements specific to Systems 1000 Vac, 1500 Vdc and Below (Chapter 2), Systems Over 1000 Vac, 1500 Vdc (Chapter 3), and Limited Energy Systems (Chapter 4). While Article 110 is titled "General Requirements for Electrical Installations", not all the requirements located in 110 are "General", as they apply specifically to one of the Systems in Chapters 2, 3, and/or 4.

This PI is a companion to other PIs that relocate voltage/system specific requirements to their respective Chapters. This PI relocates requirements from Article 110 that are specific to systems rated Not Over 1000 Vac, 1500 Vdc. In making this change, the Title and Scope are modified, and requirements that are from 110 that are "General", but apply to systems Not Over 1000 Vac, 1500 Vdc are included in "Part I" and requirements for "Working Space" are in "Part II". The existing "Wiring

Method and Material” requirements for Article 300 are in Part III, with Section 300.20 establishing the ‘scope’ of Part III.

The requirement that is voltage specific in 300.4(A) is deleted as the entire Article (and Chapter) applies to less than 1000 Vac, 1500 Vdc, and details as to what wiring methods apply to systems rated over 1000 Vac, 1500 Vdc are to be located in Article 400.

Lastly, while not specifically noted in this PI, the relocation of requirements from 110 would require that the title to “Chapter 2” (as noted in Annex L) be revisited. It is suggested that the title be revised as follows: Chapter 2 – Systems 1000 V ac, 1500 Vdc and Below (Excluding Chapter 4 Systems)

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 2694-NFPA 70-2026 [Article 110]	
Public Input No. 2696-NFPA 70-2026 [Article 305]	
Public Input No. 2694-NFPA 70-2026 [Article 110]	
Public Input No. 2696-NFPA 70-2026 [Article 305]	

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Submittal Date: Sun Apr 05 10:16:25 EDT 2026

Committee: NEC-P03

Rationale:

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The requirement that is voltage specific in 300.4(A) is deleted as the entire Article (and Chapter) applies to less than 1000 Vac, 1500 Vdc, and details as to what wiring methods apply to systems rated over 1000 Vac, 1500 Vdc are to be located in Article 400.

Lastly, while not specifically noted in this PI, the relocation of requirements from 110 would require that the title to "Chapter 2" (as noted in Annex L) be revisited. It is suggested that the title be revised as follows: **Chapter 2 – Systems 1000 V ac, 1500 Vdc and Below (Excluding Chapter 4 Systems)**

Article 300 General Requirements

PART I. General

300.1 Scope.

This article covers general requirements for installations rated not over 1000 volts ac, 1500 volts dc, nominal, unless modified by requirements located elsewhere in this code.

300.4 Electrical Connections. Termination devices such as pressure terminal or pressure splicing connectors and soldering lugs shall be identified, installed, and used for the material of the conductor. Conductors shall not be intermixed in a terminal or splicing connector or soldering lug where physical contact occurs between dissimilar conductors unless the device is identified for the purpose and conditions of use. Materials such as solder, fluxes, inhibitors, and compounds, where employed, shall be identified for the use and shall be of a type that will not adversely affect the conductors, installation, or equipment. Connectors and terminals for conductors more finely stranded than Class B and Class C stranding as shown in Chapter 9 Table 10 shall be identified for the specific conductor class or classes.

(A) Terminals. Connection of conductors to terminal parts shall ensure a mechanically secure electrical connection without damaging the conductors and shall be made by means of pressure connectors (including set-screw type), solder lugs, or splices to flexible leads. Connection by means of wire-binding screws or studs and nuts that have upturned lugs or the equivalent shall be permitted for 10 AWG or smaller conductors.

Terminals for more than one conductor and terminals used to connect aluminum shall be so identified.

(B) Splices. Conductors shall be spliced or joined with splicing devices identified for the use or by brazing, welding, or soldering with a fusible metal or alloy. Soldered splices shall first be spliced or joined so as to be mechanically and electrically secure without solder and then be soldered. All splices and joints and the free ends of conductors shall be covered with an insulation equivalent to that of the conductors or with an identified insulating device.

Wire connectors or splicing means installed on conductors for direct burial shall be listed for such use.

(C) Temperature Limitations. The temperature rating associated with the ampacity of a conductor shall be selected and coordinated so as not to exceed the lowest temperature rating of any connected termination, conductor, or device. Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustment, correction, or both.

(1) Equipment Provisions. The determination of termination provisions of equipment shall be based on 300.4(C)(1)(a) or 300.4(C)(1)(b). Unless the equipment is listed and marked otherwise, conductor ampacities used in determining equipment termination provisions shall be based on Table 310.16 as appropriately modified by 310.12.

- (a) Termination provisions of equipment for circuits rated 100 amperes or less, or marked for 14 AWG through 1 AWG conductors, shall be used only for one of the following:
 - (1) Conductors rated 60°C (140°F).
 - (2) Conductors with higher temperature ratings, provided the ampacity of such conductors is determined based on the 60°C (140°F) ampacity of the conductor size used.
 - (3) Conductors with higher temperature ratings if the equipment is listed and identified for use with such conductors.
 - (4) For motors marked with design letters B, C, or D, conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity.
- (b) Termination provisions of equipment for circuits rated over 100 amperes, or marked for conductors larger than 1 AWG, shall be used only for one of the following:
 - (1) Conductors rated 75°C (167°F)
 - (2) Conductors with higher temperature ratings, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity of the conductor size used, or up to their ampacity if the equipment is listed and identified for use with such conductors

(2) Separate Connector Provisions. Separately installed pressure connectors shall be used with conductors at the ampacities not exceeding the ampacity at the listed and identified temperature rating of the connector.

Informational Note: Equipment markings or listing information may additionally restrict the sizing and temperature ratings of connected conductors.

(D) Terminal Connection Torque. Tightening torque values for terminal connections shall be as indicated on equipment or in installation instructions provided by the manufacturer. An approved means shall be used to achieve the indicated torque value.

Informational Note No. 1: Examples of approved means of achieving the indicated torque values include torque tools or devices such as shear bolts or breakaway-style devices with visual indicators that demonstrate that the proper torque has been applied.

Informational Note No. 2: See UL Standard 486A-486B, *Standard for Safety-Wire Connectors*, Informative Annex I for torque values in the absence of manufacturer's recommendations. The equipment manufacturer can be contacted if numeric torque values are not indicated on the equipment or if the installation instructions are not available.

Informational Note No. 3: See NFPA 70B, *Standard for Electrical Equipment Maintenance*, Section 7.2 for torquing threaded connections and terminations.

300.5 Guarding of Live Parts.

(A) Live Parts Guarded Against Accidental Contact. Except as elsewhere required or permitted by this code, live parts of electrical equipment operating at 50 volts ac/dc to 1000 volts ac, 1500 volts dc, nominal, shall be guarded against accidental contact by approved enclosures or by any of the following means:

- (1) By location in a room, vault, or similar enclosure that is accessible only to qualified persons.

Provides a Degree of Protection Against the Following Environmental Conditions	For Outdoor Use									
	Enclosure Type Number									
	3	3R	3S	3X	3RX	3SX	4	4X	6	6P
Circulating dust, lint, fibers, and flyings	—	—	X	X	—	X	X	X	X	X
Settling airborne dust, lint, fibers, and flyings	—	—	X	X	X	X	X	X	X	X
Hosedown and splashing water	—	—	X	X	—	X	X	—	—	—
Oil and coolant seepage	—	—	—	—	—	—	—	X	X	X
Oil or coolant spraying and splashing	—	—	—	—	—	—	—	—	—	X
Corrosive agents	—	—	—	X	—	—	X	—	—	—
Temporary submersion	—	—	—	—	—	X	X	—	—	—
Prolonged submersion	—	—	—	—	—	—	X	—	—	—

*The mechanism shall be operable when ice covered.

Informational Note No. 1: The term *raintight* is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 6, and 6P. The term *rainproof* is typically used in conjunction with Enclosure Types 3R and 3RX. The term *watertight* is typically used in conjunction with Enclosure Types 4, 4X, 6, and 6P. The term *driptight* is typically used in conjunction with Enclosure Types 2, 5, 12, 12K, and 13. The term *dusttight* is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 5, 6, 6P, 12, 12K, and 13.

Informational Note No. 2: See ANSI/IEC 60529, *Degrees of Protection Provided by Enclosures*, for ingress protection (IP) ratings.

Informational Note No. 3: See 502.10(A)(3), 502.10(B)(4), 503.10(A)(2), and 506.15(C)(3) for information on the use of dusttight enclosures in hazardous locations.

Informational Note No. 4: Some enclosure types, such as 12, 12K, or 13 enclosures, may be marked with an ancillary “-XH” for corrosive and hosedown capable indoor enclosure.

Informational Note No. 5: Some type 4X enclosures may be marked “indoor only.”

Informational Note No. 6: See NEMA EN 10250-2024 (formerly known as NEMA 250), *Enclosures for Electrical Equipment (1000 Volts Maximum)*, for the description of the “Enclosure Type Rating: Ancillary — PW for Pressure Wash and XH for Corrosive — and Hosedown — Capable Indoor Enclosures.”

PART II. Working Space

300.10 Spaces About Electrical Equipment. Working space, and access to and egress from working space, shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment. Open equipment doors shall not impede access to and egress from the working space. Access or egress is impeded if one or more simultaneously opened equipment doors restrict working space access to be less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high when such doors are or can be opened 90 degrees.

(A) Working Space. Working space for equipment likely to require examination, adjustment, servicing, or maintenance while energized shall comply with the dimensions of 300.10(A)(1), 300.10(A)(2), 300.10(A)(3), and 300.10(A)(4) or as required or permitted elsewhere in this code. By special permission, smaller working spaces shall be permitted where all exposed live parts operate at not greater than 30 volts rms, 42 volts peak, or 60 volts dc.

Informational Note: See NFPA 70E, *Standard for Electrical Safety in the Workplace*, for guidance, such as determining severity of potential exposure and planning safe work practices including establishing an electrically safe work condition, arc flash labeling, and selecting personal protective equipment.

(1) Depth of Working Space. The depth of the working space in the direction of live parts shall not be less than that specified in Table 300.10(A)(1) unless the requirements of 300.10(A)(1)(a) or 300.10(A)(1)(b) are met. Distances shall be measured from the enclosure front or opening, if such live parts are enclosed.

Table 300.10(A)(1) Working Spaces

Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
0–150 ac or dc	900 mm (3 ft)	900 mm (3 ft)	900 mm (3 ft)
151–600 ac or dc	900 mm (3 ft)	1.0 m (3 ft 6 in.)	1.2 m (4 ft)

Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
601–1000 ac or 601–1500 dc	900 mm (3 ft)	1.2 m (4 ft)	1.5 m (5 ft)

Note: Where the conditions are as follows:

Condition 1 — Exposed or enclosed live parts on one side of the working space and no exposed or enclosed live or grounded parts on the other side of the working space, or exposed or enclosed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2 — Exposed or enclosed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3 — Exposed or enclosed live parts on both sides of the working space.

- (a) *Dead-Front Assemblies.* Working space shall not be required in the back or sides of assemblies, such as dead-front switchboards, switchgear, or motor control centers, where all connections and all renewable or adjustable parts, such as fuses or switches, are accessible from locations other than the back or sides. Where rear access is required to work on nonelectrical parts on the back of enclosed equipment, a minimum horizontal working space of 762 mm (30 in.) shall be provided.
- (b) *Existing Buildings.* In existing buildings where electrical equipment is being replaced, Condition 2 working clearance shall be permitted between dead-front switchboards, switchgear, enclosed panelboards, or motor control centers located across the aisle from each other where conditions of maintenance and supervision ensure that written procedures have been adopted to prohibit equipment on both sides of the aisle from being open at the same time and qualified persons who are authorized will service the installation.

(2) Width of Working Space. The width of the working space in front of the electrical equipment shall be the width of the equipment or 762 mm (30 in.), whichever is greater. In all cases, the work space shall permit at least a 90-degree opening of equipment doors or hinged panels.

(3) Height of Working Space. The work space shall be clear and extend from the grade, floor, or platform to a height of 2.0 m (6½ ft) or the height of the equipment, whichever is greater. Within the height requirements of this section, other equipment or support structures, such as concrete pads, associated with the electrical installation and located above or below the electrical equipment shall be permitted to extend not more than 150 mm (6 in.) beyond the front of the electrical equipment.

Exception No. 1: On battery systems mounted on open racks, the top clearance shall comply with 480.10(D).

Exception No. 2: In existing dwelling units, service equipment or enclosed panelboards that do not exceed 200 amperes shall be permitted in spaces where the height of the working space is less than 2.0 m (6½ ft).

Exception No. 3: Meters that are installed in meter sockets shall be permitted to extend beyond the other equipment. The meter socket shall be required to follow the rules of this section.

(4) Limited Access. Where equipment likely to require examination, adjustment, servicing, or maintenance while energized is required by installation instructions or function to be located in a space with limited access, all of the following shall apply:

- (1) Where equipment is installed above a lay-in ceiling, there shall be an opening not smaller than 559 mm × 559 mm (22 in. × 22 in.), or in a crawl space, there shall be an accessible opening not smaller than 559 mm × 762 mm (22 in. × 30 in.).
- (2) The width of the working space shall be the width of the equipment enclosure or a minimum of 762 mm (30 in.), whichever is greater.
- (3) All enclosure doors or hinged panels shall be capable of opening a minimum of 90 degrees.
- (4) The space in front of the enclosure shall comply with the depth requirements of Table 300.10(A)(1) and shall be unobstructed to the floor by fixed cabinets, walls, or partitions. Space reductions in accordance with 300.10(A) shall be permitted. The maximum height of the working space shall be the height necessary to install the equipment in the limited space. A horizontal ceiling structural member or access panel shall be permitted in this space provided the location of weight-bearing structural members does not result in a side reach of more than 150 mm (6 in.) to work within the enclosure.

(5) Separation from High-Voltage Equipment. Where switches, cutouts, or other equipment operating at 1000 volts ac, 1500 volts dc, nominal, or less are installed in a vault, room, or enclosure where there are exposed live parts or exposed wiring operating over 1000 volts ac, 1500 volts dc, nominal, the high-voltage equipment shall be effectively separated from the space occupied by the equipment operating at 1000 volts ac, 1500 volts dc, nominal, or less by a suitable partition, fence, or screen.

(6) Grade, Floor, or Working Platform. The grade, floor, or platform in the required working space shall be kept clear and as level and flat as practical for the entire required depth and width of the working space.

(B) Clear Spaces. Working space required by this section shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded.

(C) Entrance to and Egress from Working Space.

(1) Minimum Required. At least one entrance of sufficient area shall be provided to give access to and egress from working space about electrical equipment.

(2) Large Equipment. For large equipment that contains OCPDs, switching devices, or control devices, there shall be one entrance to and egress from the required working space not less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high at each end of the working space. This requirement shall apply to either of the following conditions:

- (1) For equipment rated 1200 amperes or more and over 1.8 m (6 ft) wide
- (2) For disconnecting means installed in accordance with 225.33(A) or 230.71(B) where the combined ampere rating is 1200 amperes or more and where the combined width is over 1.8 m (6 ft)

A single entrance to and egress from the required working space shall be permitted where either of the conditions in 300.10(C)(2)(a) or 300.10(C)(2)(b) is met.

- (a) *Unobstructed Egress.* Where the location permits a continuous and unobstructed way of egress travel, a single entrance to the working space shall be permitted.
- (b) *Extra Working Space.* Where the depth of the working space is twice that required by 300.10(A)(1), a single entrance shall be permitted. It shall be located such that the distance from the equipment to the nearest edge of the entrance is not less than the minimum clear distance specified in Table 300.10(A)(1) for equipment operating at that voltage and in that condition.

(3) Personnel Doors. Where equipment rated 800 amperes or more that contains OCPDs, switching devices, or control devices is installed and there are personnel doors intended for entrance to and egress from the working space less than 7.6 m (25 ft) from the nearest edge of the working space, the doors shall open at least 90 degrees in the direction of egress and be equipped with listed panic hardware or listed fire exit hardware.

Informational Note: See UL 305, *Standard For Panic Hardware*, for additional information on panic hardware, and see UL 10C, *Standard for Safety for Positive Pressure Fire Tests of Door Assemblies*, for additional information.

(D) Illumination. Illumination shall be provided for all working spaces about service equipment, switchboards, switchgear, enclosed panelboards, or motor control centers installed indoors. Control of all luminaires by automatic means shall not be permitted for the working space. Additional lighting outlets shall not be required where the work space is illuminated by an adjacent light source or as permitted by 210.70(A)(1) Exception No. 1 for switched receptacles.

(E) Dedicated Equipment Space. All service equipment, switchboards, switchgear, enclosed panelboards, and motor control centers shall be located in dedicated spaces and protected from damage. *Exception: Control equipment that by its very nature or because of other rules of the code must be adjacent to or within sight of its operating machinery shall be permitted in those locations.*

(1) Indoor. Indoor installations shall comply with 300.10(E)(1)(a) through 300.10(E)(1)(d).

- (a) *Dedicated Electrical Space.* The space equal to the width and depth of the equipment and extending from the floor to a height of 1.8 m (6 ft) above the equipment or to the structural ceiling, whichever is lower, shall be dedicated to the electrical installation. No piping, ducts, leak

protection apparatus, or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Suspended ceilings with removable panels shall be permitted within the 1.8 m (6 ft) zone.

- (b) *Foreign Systems.* The area above the dedicated space required by 300.10(E)(1)(a) shall be permitted to contain foreign systems, provided protection is installed to avoid damage to the electrical equipment from condensation, leaks, or breaks in such foreign systems.
- (c) *Sprinkler Protection.* Sprinkler protection shall be permitted for the dedicated space where the piping complies with this section.
- (d) *Suspended Ceilings.* A dropped, suspended, or similar ceiling that does not add strength to the building structure shall not be considered a structural ceiling.

(2) Outdoor. Outdoor installations shall comply with 300.10(E)(2)(a) through 300.10(E)(2)(c).

- (a) *Installation Requirements.* Outdoor electrical equipment shall be the following:
 - (1) Installed in identified enclosures
 - (2) Protected from accidental contact by unauthorized personnel or by vehicular traffic
 - (3) Protected from accidental spillage or leakage from piping system
- (b) *Work Space.* The working clearance space shall include the zone described in 300.10(A). No architectural appurtenance or other equipment shall be located in this zone.
- (c) *Dedicated Equipment Space.* The space equal to the width and depth of the equipment, and extending from grade to a height of 1.8 m (6 ft) above the equipment, shall be dedicated to the electrical installation. No piping or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Structural overhangs or roof extensions shall be permitted in this zone.

(F) Locked Electrical Equipment Rooms or Enclosures. Electrical equipment rooms or enclosures housing electrical apparatus that are controlled by locks shall be considered accessible to qualified persons.

PART III. Wiring Methods and Materials

300.20 General.

(A) Covered. The requirements of Article 300 Part III covers general requirements for wiring methods and materials for all wiring installations unless modified elsewhere in this code.

(B) Not Covered.

The requirements of Article 300 Part III does not cover the following:

- (1) Class 2 circuits, Class 3 circuits, Class 4 circuits, optical fiber systems, communications systems, antenna systems, community antenna systems, network-powered broadband communications systems, premises-powered broadband communications systems, and power-limited fire alarm systems
- (2) Conductors that form an integral part of equipment, such as motors, controllers, motor control centers, or factory-assembled control equipment or listed utilization equipment

300.21 Limitations.

(A) Temperature.

Temperature limitation of conductors shall be in accordance with 310.14(A)(3).

(B) Damaged Conductors and Wiring Methods.

Conductors and wiring methods that are no longer suitable for use due to damage, such as overheating, fire damage, corrosive influences, or water, shall be replaced.

Informational Note No. 1: See NEMA GD 1-2019, *Evaluating Water-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by water.
Informational Note No. 2: See NEMA GD 2-2021, *Evaluating Fire- and Heat-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by fire or heat.

NOTE: Sections 300.5 – 300.27 to be renumbered to Sections 300.22 – 300.43

300.5 Conductors.

(A) Single Conductors.

Single conductors specified in Table 310.4(1) shall only be permitted where installed as part of a recognized wiring method specified in Chapter 3.

Exception: Individual conductors shall be permitted where installed as separate overhead conductors in accordance with 225.6.

(B) Conductors of the Same Circuit.

All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors and bonding conductors shall be contained within the same raceway, conduit body, auxiliary gutter, cable tray, cablebus assembly, trench, cable, or cord unless otherwise permitted in accordance with 300.5(B)(1) through 300.5(B)(4).

(1) Paralleled Installations.

Conductors shall be permitted to be run in parallel in accordance with 310.10(G). The requirement to run all circuit conductors within the same raceway, auxiliary gutter, cable tray, trench, cable, or cord shall apply separately to each portion of the paralleled installation, and the equipment grounding conductors shall comply with 250.122. Connections, taps, or extensions made from paralleled conductors shall connect to all conductors of the paralleled set, grounded and ungrounded, as applicable. Parallel runs in cable trays shall comply with 392.20(C).

Exception: Conductors installed in nonmetallic raceways run underground shall be permitted to be arranged as isolated phase, neutral, and grounded conductor installations. The raceways shall be installed in close proximity, and the isolated phase, neutral, and grounded conductors shall comply with 300.22(B).

(2) Grounding and Bonding Conductors.

Equipment grounding conductors shall be permitted to be installed outside a raceway or cable assembly in accordance with 250.130(C) for certain existing installations or in accordance with 250.134 Exception No. 2 for dc circuits. Equipment bonding conductors shall be permitted to be installed on the outside of raceways in accordance with 250.102(E).

(3) Nonferrous Wiring Methods.

Conductors in wiring methods with a nonmetallic or other nonmagnetic sheath, where run in different raceways, auxiliary gutters, cable trays, trenches, cables, or cords, shall comply with 300.22(B). Conductors in single-conductor Type MI cable with a nonmagnetic sheath shall comply with 332.31. Conductors of single-conductor Type MC cable with a nonmagnetic sheath shall comply with 330.31, 330.116, and 300.22(B).

(4) Column-Width Panelboards.

Where an auxiliary gutter runs between a column-width panelboard and a pull box, and the pull box includes neutral terminations, the neutral conductors of circuits supplied from the panelboard shall be permitted to originate in the pull box.

(C) Conductors of Different Systems.

(1) 1000 Volts ac, 1500 volts dc, Nominal, or Less.

- (a) *Insulation Voltage Rating.* Conductors of ac and dc circuits rated 1000 volts ac, 1500 volts dc, nominal, or less shall be permitted to occupy the same equipment wiring enclosure, cable, or raceway. All conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway.
- (b) *Electric-Discharge Lamps.* Secondary wiring to electric-discharge lamps of 1000 volts ac, 1500 volts dc, nominal, or less, if insulated for the secondary voltage involved, shall be permitted to occupy the same luminaire, sign, or outline lighting enclosure as the branch-circuit conductors.

Informational Note No. 1: See 722.15 for Class 2 and Class 3 circuit conductors.

Informational Note No. 2: See 722.15 for Class 4 circuit conductors.

Informational Note No. 3: See 690.31(B) for photovoltaic source and output circuits.

(2) Over 1000 Volts ac, 1500 Volts dc, Nominal.

Conductors of circuits rated over 1000 volts ac or 1500 volts dc shall not occupy the same equipment wiring enclosure, cable, or raceway with conductors of circuits rated 1000 volts ac, 1500 volts dc, nominal, or less unless permitted in accordance with 305.13(B).

300.6 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 that the edge of the hole is not less than 32 mm (1¼ in.) from the edges of the wood member. Where this distance cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate(s) or bushing(s) at least 1.6 mm (⅛ in.) thick, and of appropriate length and width, installed to cover the area of the wiring.

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

Exception No. 2: A listed and marked steel plate less than 1.6 mm (⅛ 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 from penetration by nails or screws by a steel plate at least 1.6 mm (⅛ 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 (⅛ 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 (⅛ in.) in thickness shall be used to protect the cable or tubing.

Exception: A listed and marked steel plate less than 1.6 mm (⅛ 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 (1¼ 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 (⅛ 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 (⅛ in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.

(E) Wiring Methods and Materials in or Under Roof Decking.

Wiring methods and materials installed under roof decking shall be installed to maintain not less than 38 mm (1½ in.) separation from the lowest surface of the roof decking. Wiring methods shall not be installed in concealed locations in metal-corrugated, sheet decking-type roofs.

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

Exception No. 1: Rigid metal conduit and intermediate metal conduit, with listed steel or malleable iron fittings and boxes, shall not be required to comply with 300.6(E).

Exception No. 2: The 38 mm (1½ in.) spacing shall not be required where metal-corrugated sheet roof decking is covered with a minimum thickness 50 mm (2 in.) concrete slab, measured from the top of the corrugated roofing.

Exception No. 3: Wiring methods and materials shall be permitted in concealed locations where encased in concrete not less than 50 mm (2 in.) thick. Boxes and conduit bodies shall be installed in accordance with 314.29.

(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 (⅛ in.) thick steel plate, sleeve, or equivalent or by not less than 32-mm (1¼-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 PVC conduit, RTRC, or electrical metallic tubing.

Exception No. 2: A listed and marked steel plate less than 1.6 mm (⅛ 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.

300.7 Underground Installations.

(A) Minimum Cover Requirements.

Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum cover requirements of Table 300.7(A).

Table 300.7(A) Minimum Cover Requirements, 0 to 1000 Volts ac, 1500 Volts dc, Nominal, Burial in Millimeters (Inches)

Location of Wiring Method or Circuit	Type of Wiring Method or Circuit									
	Column 1 Direct Burial Cables or Conductors		Column 2 Rigid Metal Conduit or Intermediate Metal Conduit		Column 3 Electrical Metallic Tubing, Nonmetallic Raceways Listed for Direct Burial Without Concrete Encasement, or Other Approved Raceways		Column 4 Residential Branch Circuits Rated 120 Volts or Less with GFCI Protection and Maximum Overcurrent Protection of 20 Amperes		Column 5 Circuits for Control of Irrigation and Landscape Lighting Limited to Not More Than 30 Volts and Installed with Type UF or in Other Identified Cable or Raceway	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
All locations not specified below	600	24	150	6	450	18	300	12	150 ^{1,2}	6 ^{1,2}
In trench below 50 mm (2 in.) thick concrete or equivalent	450	18	150	6	300	12	150	6	150	6
Under a building	0	0	0	0	0	0	0	0	0	0
	(in raceway or Type MC or Type MI cable identified for direct burial)						(in raceway or Type MC or Type MI cable identified for direct burial)		(in raceway or Type MC or Type MI cable identified for direct burial)	
Under minimum of 102 mm (4 in.) thick concrete exterior slab with no vehicular traffic and the slab extending not less than 152 mm (6 in.) beyond the underground installation	450	18	100	4	100	4	150	6	150	6
							(direct burial)	(direct burial)		
							100	4	100	4
							(in raceway)	(in raceway)		
Under streets, highways, roads, alleys, driveways, and parking lots	600	24	600	24	600	24	600	24	600	24
One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes	450	18	450	18	450	18	300	12	450	18
In or under airport runways, including adjacent areas where trespassing is prohibited	450	18	450	18	450	18	450	18	450	18

¹A lesser depth shall be permitted where specified in the installation instructions of a listed low-voltage lighting system.

²A depth of 150 mm (6 in.) shall be permitted for pool, spa, and fountain lighting, installed in a nonmetallic raceway, limited to not more than 30 volts where part of a listed low-voltage lighting system.

Notes:

1. Cover shall be defined as the shortest distance in mm (in.) measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.
2. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 50 mm (2 in.) thick.
3. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.
4. Where one of the wiring method types listed in Columns 1 through 3 is used for one of the circuit types in Columns 4 and 5, the shallowest depth of burial shall be permitted.
5. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in a metal raceway, or a nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 50 mm (2 in.) of concrete extending down to rock.
6. Directly buried electrical metallic tubing (EMT) shall comply with 358.10.

(B) Wet Locations.

The interior of enclosures or raceways installed underground shall be considered to be a wet location. Insulated conductors and cables installed in these enclosures or raceways in underground installations shall comply with 310.10(C).

(C) Underground Cables and Conductors Under Buildings.

Underground cable and conductors installed under a building shall be in a raceway.

Exception No. 1: Type MI cable shall be permitted under a building without installation in a raceway where embedded in concrete, fill, or other masonry in accordance with 332.10(6) or in underground runs where suitably protected against physical damage and corrosive conditions in accordance with 332.10(10).

Exception No. 2: Type MC cable listed for direct burial or concrete encasement shall be permitted under a building without installation in a raceway in accordance with 330.10(A)(5) and in wet locations in accordance with 330.10(A)(11).

(D) Protection from Damage.

Conductors and cables shall be protected from damage in accordance with 300.7(D)(1) through 300.7(D)(4).

(1) Emerging from Grade.

Direct-buried conductors and cables emerging from grade and specified in Columns 1 and 4 of Table 300.7(A) shall be protected by enclosures or raceways extending from the minimum cover distance below grade required by 300.7(A) to a point at least 2.5 m (8 ft) above finished grade. In no case shall the protection be required to exceed 450 mm (18 in.) below finished grade.

(2) Conductors Entering Buildings.

Conductors entering a building shall be protected to the point of entrance.

(3) Service Conductors and Raceways.

Direct buried service conductors and raceways containing service conductors that are not encased in concrete and that are buried 450 mm (18 in.) or more below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (12 in.) above the underground installation.

(4) Enclosure or Raceway Damage.

Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in electrical metallic tubing, rigid metal conduit, intermediate metal conduit, RTRC-XW, Schedule 80 PVC conduit, or equivalent.

(E) Splices and Taps.

Direct-buried conductors or cables shall be permitted to be spliced or tapped without the use of splice boxes. The splices or taps shall be made in accordance with 110.14(B).

(F) Backfill.

Backfill that contains large rocks, paving materials, cinders, large or sharply angular substances, or corrosive material shall not be placed in an excavation where materials might damage raceways, cables, conductors, or other substructures or prevent adequate compaction of fill or contribute to corrosion of raceways, cables, or other substructures.

Where necessary to prevent physical damage to the raceway, cable, or conductor, protection shall be provided in the form of granular or selected material, suitable running boards, suitable sleeves, or other approved means.

(G) Raceway Seals.

Conduits or raceways through which moisture might contact live parts shall be sealed or plugged at either or both ends. Spare or unused raceways shall also be sealed. Sealants shall be identified for use with the cable insulation, conductor insulation, bare conductor, shield, or other components.

Informational Note: Presence of hazardous gases or vapors might also necessitate the sealing of underground conduits or raceways entering buildings.

(H) Bushing.

A bushing, or terminal fitting, with an integral bushed opening shall be used at the end of a conduit or other raceway that terminates underground where the conductors or cables emerge as a direct burial wiring method. A seal incorporating the physical protection characteristics of a bushing shall be permitted to be used in lieu of a bushing.

(I) Conductors of the Same Circuit.

All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors shall be installed in the same raceway or cable or shall be installed in close proximity in the same trench.

Exception No. 1: Conductors shall be permitted to be installed in parallel in raceways, multiconductor cables, or direct-buried single conductor cables. Each raceway or multiconductor cable shall contain all conductors of the same circuit, including equipment grounding conductors. Each direct-buried single conductor cable shall be located in close proximity in the trench to the other single conductor cables in the same parallel set of conductors in the circuit, including equipment grounding conductors.

Exception No. 2: Isolated phase, polarity, grounded conductor, and equipment grounding and bonding conductor installations shall be permitted in nonmetallic raceways or cables with a nonmetallic covering or nonmagnetic sheath in close proximity where conductors are paralleled as permitted in 310.10(G), and where the conditions of 300.22(B) are met.

(J) Earth Movement.

Where direct-buried conductors, raceways, or cables are subject to movement by settlement or frost, direct-buried conductors, raceways, or cables shall be arranged so as to prevent damage to the enclosed conductors, to raceways, or to equipment connected to the raceways.

Informational Note: This section recognizes "S" loops in underground direct burial cables and conductors to raceway transitions, expansion fittings in raceway risers to fixed equipment, and, generally, the provision of flexible connections to equipment subject to settlement or frost heaves.

(K) Directional Boring.

Cables or raceways installed using directional boring equipment shall be approved for the purpose.

300.8 Protection Against Corrosion and Deterioration.

Raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, fittings, supports, and support hardware shall be of materials suitable for the environment in which they are to be installed. For the purposes of this section, enclosures shall not include fences or walls surrounding electrical equipment.

(A) Ferrous Metal Equipment.

Ferrous metal raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall be suitably protected against corrosion inside and outside by a coating of approved corrosion-resistant material. Where corrosion protection is necessary and the conduit is threaded anywhere other than at the factory where the product is listed, the threads shall be coated with an approved electrically conductive, corrosion-resistant compound.

Exception: Stainless steel shall not be required to have protective coatings.

(1) Protected from Corrosion Solely by Enamel.

Where protected from corrosion solely by enamel, ferrous metal raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall not be used outdoors or in wet locations as described in 300.8(D).

(2) Organic Coatings on Boxes or Cabinets.

Where boxes, cabinets, or enclosures have an approved system of organic coatings and are marked "Raintight," "Rainproof," or "Outdoor Type," they shall be permitted outdoors.

(3) In Concrete or in Direct Contact with the Earth.

Ferrous metal raceways, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall be permitted to be installed in concrete, in direct contact with the earth, or in areas subject to severe corrosive influences where made of material approved for the condition or where provided with corrosion protection approved for the condition.

(B) Aluminum Metal Equipment.

Aluminum raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware embedded or encased in concrete or in direct contact with the earth shall be provided with supplementary corrosion protection.

(C) Nonmetallic Equipment.

Nonmetallic raceways, cable trays, cablebus, auxiliary gutters, boxes, cables with a nonmetallic outer jacket and internal metal armor or jacket, cable sheathing, cabinets, enclosures, elbows, couplings, nipples, fittings, supports, and support hardware shall be made of material approved for the condition and shall comply with 300.8(C)(1) and 300.8(C)(2) as applicable to the specific installation.

(1) Exposed to Sunlight.

Where exposed to sunlight, the materials shall be listed as sunlight resistant or shall be identified as sunlight resistant.

(2) Chemical Exposure.

Where subject to exposure to chemical solvents, vapors, splashing, or immersion, materials or coatings shall either be inherently resistant to chemicals based on their listing or be identified for the specific chemical reagent.

(D) Indoor Wet Locations.

In portions of dairy processing facilities, laundries, canneries, and other indoor wet locations, and in locations where walls are frequently washed or where there are surfaces of absorbent materials, such as damp paper or wood, the entire wiring system, where installed exposed, including all boxes, cabinets, enclosures, fittings, raceways, and cable used therewith, shall be mounted so that there is at least a 6 mm (1/4 in.) airspace between it and the wall or supporting surface.

Exception: Nonmetallic raceways, boxes, and fittings shall be permitted to be installed without the airspace on a concrete, masonry, tile, or similar surface.

Informational Note: In general, areas where acids and alkali chemicals are handled and stored might present such corrosive conditions, particularly when wet or damp. Severe corrosive conditions might also be present in portions of meatpacking plants, tanneries, glue houses, and some stables; in installations immediately adjacent to a seashore and swimming pool areas; in areas where chemical deicers are used; and in storage cellars or rooms for hides, casings, fertilizer, salt, and bulk chemicals.

300.9 Raceways Exposed to Different Temperatures.

(A) Condensation.

Where portions of a raceway or sleeve are known to be subjected to different temperatures, and where condensation is known to be a problem, as in cold storage areas of buildings or where passing from the interior to the exterior of a building, the raceway or sleeve shall comply with 300.9(A)(1) or 300.9(A)(2).

- (1) *Sealants.* The raceway or sleeve shall be sealed to prevent the circulation of warm air to a colder section of the raceway or sleeve. Sealants shall be identified for use with cable insulation, conductor insulation, a bare conductor, a shield, or other components. An explosionproof seal shall not be required for this purpose.
- (2) *Other Approved Means.* The use of a listed fitting or other approved means identified for the purpose of preventing condensation and the circulation of warm air shall be permitted.

Informational Note: An example of a fitting for the prevention of condensation could be a thermal break coupling.

(B) Expansion, Expansion-Deflection, and Deflection Fittings.

Raceways shall be provided with expansion, expansion-deflection, or deflection fittings where necessary to compensate for thermal expansion, deflection, and contraction.

Informational Note No. 1: Table 352.44 and Table 355.44 provide the expansion information for polyvinyl chloride (PVC) and for reinforced thermosetting resin conduit (RTRC), respectively. A nominal number for steel conduit can be determined by multiplying the expansion length in Table 352.44 by 0.20. The coefficient of expansion for steel electrical metallic tubing, intermediate metal conduit, and rigid metal conduit is 1.170×10^{-5} (0.0000117 mm per mm of conduit for each °C in temperature change) [0.650×10^{-5} (0.0000065 in. per in. of conduit for each °F in temperature change)].

A nominal number for aluminum conduit and aluminum electrical metallic tubing can be determined by multiplying the expansion length in Table 352.44 by 0.40. The coefficient of expansion for aluminum electrical metallic tubing and aluminum rigid metal conduit is 2.34×10^{-5} (0.0000234 mm per mm of conduit for each °C in temperature change) [1.30×10^{-5} (0.000013 in. per in. of conduit for each °F in temperature change)].

Informational Note No. 2: See NEMA FB 2.40-2019, *Installation Guidelines for Expansion and Expansion/Deflection Fittings*, for further information on expansion and expansion deflection fittings.

300.10 Installation of Conductors With Other Systems.

Raceways or cable trays containing electrical conductors or cables shall not contain any pipe, tube, or other means for steam, water, air, gas, drainage, or any service other than electrical.

300.11 Raceways in Wet Locations Above Grade.

(A) General.

Where raceways are installed in wet locations above grade, the interior of these raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceways in wet locations above grade shall comply with 310.10(C).

(B) Drainage.

Raceways installed in wet locations above grade shall be arranged to drain.

300.12 Electrical Continuity of Metal Raceways, Cable Armor, and Enclosures.

Metal raceways, cable armor, and other metal enclosures for conductors shall be metallically joined together into a continuous electrical conductor and shall be connected to all boxes, fittings, and cabinets to provide an effective ground fault current path.

Exception No. 1: Short sections of raceways used to provide support or protection of cable assemblies from physical damage shall not be required to be made electrically continuous.

Exception No. 2: Equipment enclosures to be isolated, as permitted by 250.96(B), shall not be required to be metallically joined to the metal raceway.

300.13 Securing and Supporting.

(A) Secured in Place.

Raceways, cable assemblies, boxes, cabinets, and fittings shall be securely fastened in place.

(B) Wiring Systems Installed Above Suspended Ceilings.

(1) General.

Wiring shall not be secured to or supported by the ceiling grid system, including the ceiling support wires.

(2) Independent Support Wires.

Independent support wires and associated fittings shall be permitted to provide support for wiring systems installed above a suspended ceiling if the independent support wires comply with all the following:

- (1) The independent support wires are installed in addition to the ceiling grid support wires.
- (2) The independent support wires are distinguishable by color, tagging, or other means from those that are part of the ceiling system.
- (3) The independent support wires are secured at both ends.
- (4) The independent support wires provide secure support.

Exception No. 1: The ceiling support system shall be permitted to support wiring and equipment that have been tested as part of the fire-rated assembly.

Informational Note: See ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, for one method of testing to determine fire rating.

Exception No. 2: The ceiling system shall be permitted to support branch-circuit wiring and associated equipment if installed in accordance with the ceiling system manufacturer's instructions.

(C) Raceways Used as Means of Support.

Raceways shall be used as a means of support for other raceways, cables, or nonelectrical equipment only under any of the following conditions:

- (1) If the raceway or means of support is identified as a means of support
- (2) If the raceway contains power supply conductors for electrically controlled equipment and is used to support Class 2 or Class 3 circuit conductors or cables that are solely for the purpose of connection to the equipment control circuits
- (3) If the raceway is used to support boxes or conduit bodies in accordance with 314.23 or to support luminaires in accordance with 410.36(E)
- (4) If the raceway is used to support an equipment bonding jumper that is associated with the circuit conductors within the raceway

(D) Cables and Conductors Not Used as Means of Support.

Cable and conductor wiring methods shall not be used as a means of support for other cables, conductors, raceways, or nonelectrical equipment.

(E) Cable Ties Used as Means of Securement and Support.

(1) Cable Ties.

Cable ties used as a means for securement and support for cable, flexible conduit, and flexible tubing shall be listed and identified for securement and support.

(2) Cable Tie Fixing Devices.

If a cable tie fixing device is installed, the cable tie fixing device shall be listed and identified for securement and support.

Informational Note: Type(s) 1, 11, 2, 21, 2S, or 21S cable tie and cable tie fixing device type designations are evaluated for use in cable management applications. Type(s) 2S or 21S are also evaluated for securing and supporting cable, flexible conduit, and flexible tubing.

300.14 Mechanical Continuity — Raceways and Cables.

Raceways, cable armors, and cable sheaths shall be continuous between cabinets, boxes, conduit bodies, fittings, wireways, or other enclosures or outlets. Unless specifically permitted elsewhere in this code, raceways and cable assemblies shall be mechanically secured to boxes, fittings, cabinets, and other enclosures.

Exception No. 1: Short sections of raceways used to provide support or protection of cable assemblies from physical damage shall not be required to be mechanically continuous.

Exception No. 2: Raceways and cables installed into the bottom of open bottom equipment, such as switchboards, motor control centers, and floor or pad-mounted transformers, shall not be required to be mechanically secured to the equipment.

300.15 Mechanical and Electrical Continuity — Conductors.

(A) General.

Conductors in raceways shall be continuous between outlets, boxes, devices, and so forth. There shall be no splice or tap within a raceway unless permitted by 300.17, 368.56(A), 376.56, 378.56, 384.56, 386.56, 388.56, or 390.56.

(B) Device Removal.

In multiwire branch circuits, the continuity of a grounded conductor shall not depend on device connections such as lampholders, receptacles, and so forth where the removal of such devices would interrupt the continuity.

300.16 Length of Free Conductors at Outlets, Junctions, and Switch Points.

(A) General.

At least 150 mm (6 in.) of free conductor, measured from the point in the box where it emerges from its raceway or cable sheath, shall be left at each outlet, junction, and switch point for splices or the connection of luminaires or devices. The 150 mm (6 in.) free conductor shall be permitted to be spliced or unspliced.

(B) Openings Smaller Than 200 mm (8 in.).

If the opening to an outlet, junction, or switch point is less than 200 mm (8 in.) in any dimension, each conductor shall comply with all of the following:

- (1) Each conductor shall have free conductor in accordance with 300.16(A).

(2) Each conductor shall be long enough to extend at least 75 mm (3 in.) outside the opening.

Exception: Conductors that are not spliced or terminated at the outlet, junction, or switch point shall not be required to comply with 300.16.

300.17 Boxes, Conduit Bodies, or Fittings — Where Required.

PI-475-NFPA 70-2025 submitted by [Mike Holt] on Wed Dec 31 15:22:42 EST
2025SUBMITTED

A box shall be installed at each outlet and switch point for concealed knob-and-tube wiring.

Fittings and connectors shall be used only with the specific wiring methods for which they are designed and listed.

Where the wiring method is conduit, tubing, Type AC cable, Type MC cable, Type MI cable, nonmetallic-sheathed cable, or other cables, a box or conduit body shall be installed at each outlet point, switch point, conductor splice point, conductor junction point, conductor termination point, wiring method transition point, or conductor pull point, unless otherwise permitted in 300.17(A) through 300.17(L).

(A) Wiring Methods with Interior Access.

A box or conduit body shall not be required for each splice, junction, switch, pull, termination, or outlet points in wiring methods with removable covers, such as wireways, multioutlet assemblies, auxiliary gutters, and surface raceways. The covers shall be accessible after installation.

(B) Equipment.

An integral junction box or wiring compartment as part of approved equipment shall be permitted in lieu of a box.

(C) Protection.

A box or conduit body shall not be required where cables enter or exit from conduit or tubing that is used to provide cable support or protection against physical damage. A fitting shall be provided on the end(s) of the conduit or tubing to protect the cable from abrasion.

(D) Type MI Cable.

A box or conduit body shall not be required where accessible fittings are used for straight-through splices in mineral-insulated metal-sheathed cable.

(E) Integral Enclosure.

A wiring device with integral enclosure identified for the use, having brackets that securely fasten the device to walls or ceilings of conventional on-site frame construction, for use with nonmetallic-sheathed cable, shall be permitted in lieu of a box or conduit body.

Informational Note: See 334.30(C); 545.10; 550.17(I); 551.47(E) Exception No. 1; and 552.48(E) Exception No. 1.

(F) Fitting.

A fitting identified for the use shall be permitted in lieu of a box or conduit body where conductors are not spliced or terminated within the fitting. If used as a pull point, the fitting shall be accessible after installation.

(G) Direct-Buried Conductors and Cables.

As permitted in 300.7(E), a box or conduit body shall not be required for splices and taps in direct-buried conductors and cables.

(H) Insulated Devices.

As permitted in 334.40(B), a box or conduit body shall not be required for insulated devices supplied by nonmetallic-sheathed cable.

(I) Enclosures.

A box or conduit body shall not be required where a splice, switch, terminal, or pull point is in a cabinet or cutout box, in an enclosure for a switch or OCPD as permitted in 312.11, in a motor controller as permitted in 430.10(A), or in a motor control center.

(J) Luminaires.

A box or conduit body shall not be required where a luminaire is used as a raceway as permitted in 410.64.

(K) Embedded.

A box or conduit body shall not be required for splices where conductors are embedded as permitted in 424.40, 424.41(D), 426.22(C), 426.24(A), and 427.19(A).

(L) Manholes and Handhole Enclosures.

A box or conduit body shall not be required for conductors in manholes or handhole enclosures, except where connecting to electrical equipment. The installation shall comply with Article 110 Part V for manholes and 314.30 for handhole enclosures.

300.18 Raceway or Cable to Open or Concealed Wiring.

(A) Box, Conduit Body, or Fitting.

A box, conduit body, or terminal fitting having a separately bushed hole for each conductor shall be used wherever a change is made from conduit, electrical metallic tubing, electrical nonmetallic tubing, nonmetallic-sheathed cable, Type AC cable, Type MC cable, or mineral-insulated, metal-sheathed cable and surface raceway wiring to open wiring or to concealed knob-and-tube wiring. A fitting used for this purpose shall contain no taps or splices and shall not be used at luminaire outlets. A conduit body used for this purpose shall contain no taps or splices unless it complies with 314.16(C)(2).

(B) Bushing.

A bushing shall be permitted in lieu of a box or terminal where the conductors emerge from a raceway and enter or terminate at equipment, such as open switchboards, unenclosed control equipment, or similar equipment. The bushing shall be of the insulating type for other than lead-sheathed conductors.

300.19 Number of Conductors and Cables in Raceway.

(A) Raceway Fill.

The number and size of conductors and cables in a complete raceway shall not exceed the allowable percentage fill specified in Chapter 9 Table 1.

(B) Metric Designators and Trade Sizes.

Metric designators and trade sizes for conduit, tubing, and associated fittings and accessories shall be in accordance with Table 300.19(B).

Table 300.19(B) Metric Designators and Trade Sizes

Metric Designator	Trade Size
12	3/8
16	1/2
21	3/4
27	1
35	1 1/4
41	1 1/2
53	2
63	2 1/2
78	3
91	3 1/2
103	4
129	5
155	6
205	8

Note: The metric designators and trade sizes are for identification purposes only and are not actual dimensions.

300.20 Raceway Installations.
(A) Complete Runs.

Raceways shall be installed complete between outlet, junction, or splicing points prior to the installation of conductors or cables, unless permitted by one of the following:

- (1) Busways
- (2) Listed manufactured assemblies in accordance with 604.100
- (3) Exposed raceways having hinged or removable covers
- (4) Raceways installed without terminating connections at the equipment, where required to facilitate the installation of utilization equipment
- (5) Prewired raceway assemblies, only where specifically permitted in the code for the applicable wiring method
- (6) Short sections of raceways used to contain conductors or cable assemblies for protection from physical damage

(B) Welding.

Metal raceways shall not be supported, terminated, or connected by welding to the raceway.

300.21 Supporting Conductors in Vertical Raceways.
(A) Spacing Intervals – Maximum.

Conductors in vertical raceways shall be supported if the vertical rise exceeds the values in Table 300.21(A). At least one support method shall be provided for each conductor at the top of the vertical raceway or as close to the top as practical. Intermediate supports shall be provided as necessary to limit supported conductor lengths to not greater than those values specified in Table 300.21(A).

Exception: Steel wire armor cable shall be supported at the top of the riser with a cable support that clamps the steel wire armor. A safety device shall be permitted at the lower end of the riser to hold the cable in the event there is slippage of the cable in the wire-armored cable support. Additional wedge-type supports shall be permitted to relieve the strain on the equipment terminals caused by expansion of the cable under load.

Table 300.21(A) Spacings for Conductor Supports

Conductor Size	Support of Conductors in Vertical Raceways	Conductors			
		Copper		Aluminum or Copper-Clad Aluminum	
		m	ft	m	ft
18 AWG through 8 AWG	Not greater than	30	100	30	100
6 AWG through 1/0 AWG	Not greater than	30	100	60	200
2/0 AWG through 4/0 AWG	Not greater than	25	80	55	180
Over 4/0 AWG through 350 kcmil	Not greater than	18	60	41	135
Over 350 kcmil through 500 kcmil	Not greater than	15	50	36	120
Over 500 kcmil through 750 kcmil	Not greater than	12	40	28	95
Over 750 kcmil	Not greater than	11	35	26	85

(B) Fire-Resistive Cables and Conductors.

Support methods and spacing intervals for fire-resistive cables and conductors shall comply with any restrictions provided in the listing of the electrical circuit protective system or fire-resistive cable system used and in no case shall exceed the values in Table 300.21(A).

(C) Support Methods.

One of the following methods of support shall be used:

- (1) Clamping devices constructed of or employing insulating wedges inserted in the ends of the raceways. Where clamping of insulation does not adequately support the cable, the conductor also shall be clamped.
- (2) Inserting boxes at the required intervals in which insulating supports are installed and secured in an approved manner to withstand the weight of the conductors attached thereto, the boxes being provided with covers.
- (3) In junction boxes, deflecting the cables not less than 90 degrees and carrying them horizontally to a distance not less than twice the diameter of the cable, with the cables being carried on two or more insulating supports and additionally secured thereto by tie wires, if desired. Where this method is used, cables shall be supported at intervals not greater than 20 percent of the support spacing in Table 300.21(A).
- (4) Other approved means.

**300.22 Induced Currents in Ferrous Metal Enclosures or Ferrous Metal Raceways.
(A) Conductors Grouped Together.**

Where conductors carrying alternating current are installed in ferrous metal enclosures or ferrous metal raceways, they shall be arranged so as to avoid heating the surrounding ferrous metal by induction. To accomplish this, all phase conductors and, where used, the grounded conductor and all equipment grounding conductors shall be grouped together.

Exception No. 1: Equipment grounding conductors for certain existing installations shall be permitted to be installed separate from their associated circuit conductors where run in accordance with 250.130(C).

Exception No. 2: A single conductor shall be permitted to be installed in a ferromagnetic enclosure and used for skin-effect heating in accordance with 426.42 and 427.47.

(B) Individual Conductors.

Where a single conductor carrying alternating current passes through metal with magnetic properties, the inductive effect shall be minimized by either cutting slots in the metal between the individual holes through which the individual conductors pass or passing all the conductors in the circuit through an insulating wall sufficiently large for all of the conductors of the circuit.

Exception: In the case of circuits supplying vacuum or electric-discharge lighting systems or signs or X-ray apparatus, the currents carried by the conductors are so small that the inductive heating effect can be ignored where these conductors are placed in metal enclosures or pass through metal.

Informational Note: Because aluminum is not a magnetic metal, there will be no heating due to hysteresis; however, induced currents will be present. They will not be of sufficient magnitude to require grouping of conductors or special treatment in passing conductors through aluminum wall sections.

300.23 Spread of Fire or Products of Combustion.

Electrical installations in hollow spaces, vertical shafts, and ventilation or air-handling ducts shall be made so that the possible spread of fire or products of combustion will not be substantially increased. Openings around electrical penetrations into or through fire-resistant-rated walls, partitions, floors, or ceilings shall be firestopped using approved methods to maintain the fire resistance rating.

Informational Note: Directories of electrical construction materials published by qualified testing laboratories contain many listing installation restrictions necessary to maintain the fire-resistive rating of assemblies where penetrations or openings are made. Building codes also contain restrictions on membrane penetrations on opposite sides of a fire-resistance-rated wall assembly. An example is the 600-mm (24-in.) minimum horizontal separation that usually applies between boxes installed on opposite sides of the wall. Assistance in complying with the requirements of 300.23 can be found in building codes, fire resistance directories, and product listings.

300.24 Bends.

The total degree of bends in any combination of conduit or tubing wiring methods used for a single run shall not exceed 360 degrees between pull points.

300.25 Wiring in Ducts Not Used for Air Handling, Fabricated Ducts for Environmental Air, and Other Spaces for Environmental Air (Plenums).

PI-265-NFPA 70-2025 submitted by [Ryan Jackson] on Mon Nov 24 14:38:51 EST
2025SUBMITTED

The requirements of this section shall apply to the installation and uses of electrical wiring and equipment in ducts used for dust, loose stock, or vapor removal; ducts specifically fabricated for environmental air; and other spaces used for environmental air (plenums).

Informational Note: See Article 424 Part VI for requirements on duct heaters.

(A) Ducts for Dust, Loose Stock, or Vapor Removal.

No wiring systems of any type shall be installed in ducts used to transport dust, loose stock, or flammable vapors. No wiring system of any type shall be installed in any duct, or shaft containing only such ducts, used for vapor removal or for ventilation of commercial-type cooking equipment.

(B) Ducts Specifically Fabricated for Environmental Air.

Equipment, devices, and the wiring methods specified in this section shall be permitted within such ducts only if necessary for the direct action upon, or sensing of, the contained air. Where equipment or devices are installed and illumination is necessary to facilitate maintenance and repair, enclosed gasketed-type luminaires shall be permitted.

Only wiring methods consisting of Type MI cable without an overall nonmetallic covering, Type MC cable employing a smooth or corrugated impervious metal sheath without an overall nonmetallic covering, electrical metallic tubing, flexible metallic tubing, intermediate metal conduit, or rigid metal conduit without an overall nonmetallic covering shall be installed in ducts specifically fabricated to transport environmental air. Flexible metal conduit shall be permitted, in lengths not to exceed 1.2 m (4 ft), to connect physically adjustable equipment and devices permitted to be in these fabricated ducts. The connectors used with flexible metal conduit shall effectively close any openings in the connection.

Exception: Wiring methods and cabling systems, listed for use in other spaces used for environmental air (plenums), shall be permitted to be installed in ducts specifically fabricated for environmental air-handling purposes under both of the following conditions:

- (1) *The wiring methods or cabling systems shall be permitted only if necessary to connect to equipment or devices associated with the direct action upon or sensing of the contained air.*
- (2) *The total length of such wiring methods or cabling systems shall not exceed 1.2 m (4 ft).*

(C) Other Spaces Used for Environmental Air (Plenums).

This section shall apply to spaces not specifically fabricated for environmental air-handling purposes but used for air-handling purposes as a plenum. This section shall not apply to habitable rooms or areas of buildings, the prime purpose of which is not air handling.

Informational Note No. 1: The space over a hung ceiling used for environmental air-handling purposes is an example of the type of other space to which this section applies.

Informational Note No. 2: See NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, and other mechanical codes for information on how the term *other spaces used for environmental air (plenum)*, as used in this section, correlates with the use of the term *plenum* where the plenum is used for return air purposes, as well as some other air-handling spaces.

Exception: This section shall not apply to the joist or stud spaces of dwelling units where the wiring passes through such spaces perpendicular to the long dimension of such spaces.

(1) Wiring Methods.

- (a) The wiring methods for other spaces used for environmental air shall be limited to the following:
 - (1) Totally enclosed, nonventilated, insulated busway having no provisions for plug-in connections
 - (2) Rigid metal conduit without an overall nonmetallic covering
 - (3) Intermediate metal conduit without an overall nonmetallic covering
 - (4) Electrical metallic tubing without an overall nonmetallic covering
 - (5) Flexible metallic tubing
 - (6) Flexible metal conduit
 - (7) Type MI cable without an overall nonmetallic covering
 - (8) Type MC cable without an overall nonmetallic
 - (9) Type AC cable
 - (10) Flexible bus systems that are specifically listed for use within an air-handling space

- (11) Other factory-assembled multiconductor control or power cable that is specifically listed for use within an air-handling space or listed prefabricated cable assemblies of metallic manufactured wiring systems without nonmetallic sheath
- (b) Other types of cables, conductors, and raceways shall be permitted to be installed in any of the wiring methods in 300.25(C)(1)(a)(1) through 300.25(C)(1)(a)(11) or, where accessible, surface metal raceway or metal wireway with metal covers.
- (c) Nonmetallic cable ties and other nonmetallic cable accessories used to secure and support cables shall be listed as having low smoke and heat release properties.

Informational Note: See UL 2043, *Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*, for one method of testing low smoke and heat release properties for nonmetallic cable ties and other nonmetallic cable accessories to determine a maximum peak optical density of 0.50 or less, an average optical density of 0.15 or less, and a peak heat release rate of 100 kW or less.

(2) Cable Tray Systems.

The requirements in 300.25(C)(2)(a) or 300.25(C)(2)(b) shall apply to the use of metallic cable tray systems in other spaces used for environmental air (plenums), where accessible.

- (a) *Metal Cable Tray Systems.* Metal cable tray systems shall be permitted to support the wiring methods specified in 300.25(C)(1).
- (b) *Solid Side and Bottom Metal Cable Tray Systems.* Solid side and bottom metal cable tray systems with solid metal covers shall be permitted to enclose wiring methods and cables not already covered in 300.25(C)(1) in accordance with 392.10(A) and 392.10(B).

(3) Equipment.

Electrical equipment with a metal enclosure, or electrical equipment with a nonmetallic enclosure listed for use within an air-handling space and having low smoke and heat release properties, and associated wiring material suitable for the ambient temperature shall be permitted to be installed in such other spaces unless prohibited elsewhere in this code.

Informational Note: See UL 2043, *Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*, for one method of testing low smoke and heat release properties to determine that the equipment exhibits a maximum peak optical density of 0.50 or less, an average optical density of 0.15 or less, and a peak heat release rate of 100 kW or less.

Exception: Integral fan systems shall be permitted where specifically identified for use within an air-handling space.

(D) Information Technology Equipment.

Where the installation complies with the special requirements specified in 645.5, electrical wiring in air-handling areas beneath raised floors for information technology equipment shall be permitted in accordance with 645.6(E).

300.26 Panels Designed to Allow Access.

Cables, raceways, and equipment installed behind panels designed to allow access, including suspended ceiling panels, shall be arranged and secured to allow the removal of panels and access to the equipment.

300.27 Exit Enclosures (Stair Towers).

Where an exit enclosure is required to have a fire resistance rating, only electrical wiring methods serving equipment permitted by the authority having jurisdiction in the exit enclosure shall be installed within the exit enclosure.

Exception: Where egress lighting is required on outside exterior doorways from the exit enclosure, luminaires shall be permitted to be supplied from the inside of the exit enclosure.

Informational Note: See NFPA 101, *Life Safety Code*, 7.1.3.2.1(10)(b) for more information.



Public Input No. 1034-NFPA 70-2026 [Section No. 300.1(B)]

(B) Not Covered.

This article does not cover the following:

- (1) Class 2 circuits, Class 3 circuits, Class 4 circuits, optical fiber systems, communications systems, antenna systems, community antenna systems, network-powered broadband communications systems, premises-powered broadband communications systems, and power-limited fire alarm systems
- (2) Conductors that form an integral part of equipment, such as motors, controllers, motor control centers, or factory-assembled control equipment- or , listed utilization equipment, or engine-generator assemblies.

Statement of Problem and Substantiation for Public Input

engine-generator assemblies are listed products and, as such, the internal wiring is not subject to inspection or to the requirements of NFPA 70. Because of the way Article 445 is currently written, some inspectors think that 445 applies to engine-generator assemblies and have been requiring changing the conductor size from the generator terminals to the overcurrent protection, both of which are internal to the listed product. A PI has been submitted, PI 1031, to split Article 445 into three parts. Part 1 - General, Part 2 - Generators, and Part 3 - Engine-Generator Assemblies. If the CMP doesn't want to add this to the list, then simply removing the word "utilization" from "listed utilization equipment" would suffice.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 1031-NFPA 70-2026 [Article 445]</u>	PI to split 445 into three parts
<u>Public Input No. 1033-NFPA 70-2026 [New Definition after Definition: Generator (Generator Set).]</u>	definition for engine-generator assembly

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Committee: NEC-P03



Public Input No. 754-NFPA 70-2026 [Section No. 300.1(B)]

(B) Not Covered.

This article does not cover the following:

- (1) ~~Class 2 circuits, Class 3 circuits, Class 4 circuits, optical fiber systems, communications systems, antenna systems, community antenna systems, network-powered broadband communications systems, premises-powered broadband communications systems, and power-limited fire alarm systems~~ Limited-energy systems
- (2) Conductors that form an integral part of equipment, such as motors, controllers, motor control centers, or factory-assembled control equipment or listed utilization equipment

Statement of Problem and Substantiation for Public Input

Delete the list and replace with the defined term 'Limited-Energy Systems' in Article 100 that was added to the 2023 NEC. In accordance with NEC style manual 3.5.1.4 common words shall be used, and overly complex terminology shall be avoided. Language shall be brief, clear, and emphatic.

Limited-Energy System. The equipment and cables of an end-to-end system that are either power-restricted or capable of limiting or shutting down the power source to prevent deviations above normal operating limits to mitigate hazards related to electric shock and fire. (CMP-3)

Informational Note: Examples of limited-energy systems include Class 2, Class 3, Class 4, power-limited fire alarm (PLFA), and communications systems.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submission Date: Sun Jan 25 11:21:22 EST 2026

Committee: NEC-P03



Public Input No. 822-NFPA 70-2026 [Section No. 300.1(B)]

(B) Not Covered.

This article does not cover the following:

- (1) ~~Class 2 circuits, Class 3 circuits, Class 4 circuits, optical fiber systems, communications systems, antenna systems, community antenna systems, network-powered broadband communications systems, premises-powered broadband communications systems, and power-limited fire alarm systems~~
- (2) Conductors that form an integral part of equipment, such as motors, controllers, motor control centers, or factory-assembled control equipment or listed utilization equipment

Statement of Problem and Substantiation for Public Input

It is no longer necessary to include this text. Once this section is moved into Chapter 2 it will be understood that this section only applies to systems less than 1000V. The content in the original list item (1) will now be located in Chapter 4.

Submitter Information Verification

Submitter Full Name: Lawrence Ayer

Organization: Biz Com Electric, Inc.

Affiliation: IEC

Street Address:

City:

State:

Zip:

Submission Date: Fri Jan 30 07:40:07 EST 2026

Committee: NEC-P03



Public Input No. 830-NFPA 70-2026 [Section No. 300.4(A)]

~~(A) Voltage:~~

~~Wiring methods specified in Chapter 3 shall be used for 1000 volts ac, 1500 volts dc, nominal, or less where not specifically limited elsewhere in Chapter 3. They shall be permitted for over 1000 volts ac, 1500 volts dc, nominal, where specifically permitted elsewhere in this code.~~

Statement of Problem and Substantiation for Public Input

There is no need for this language once this article is moved to Chapter 2. Chapter 2 is titled "Systems below 1000VAC, 1500V DC and specifically exclude limited energy systems."

Submitter Information Verification

Submitter Full Name: Lawrence Ayer

Organization: Biz Com Electric, Inc.

Affiliation: IEC

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Submittal Date: Fri Jan 30 15:55:29 EST 2026

Committee: NEC-P03



Public Input No. 1352-NFPA 70-2026 [Section No. 300.4(C)]

(C) Damaged Conductors and Wiring Methods.

~~Conductors~~ Portions of conductors and wiring methods that are no longer suitable for use due to damage, such as overheating, fire damage, corrosive influences, or water, shall be replaced.

Informational Note No. 1: See NEMA GD 1-2019, *Evaluating Water-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by water.

Informational Note No. 2: See NEMA GD 2-2021, *Evaluating Fire- and Heat-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by fire or heat.

Statement of Problem and Substantiation for Public Input

As written it is implied that the whole branch circuit or wiring method needs replaced if damaged, this change would clarify only the damaged portions would need replaced.

Submitter Information Verification

Submitter Full Name: Michael Weaver

Organization: M&W Electric

Affiliation: NECA

Street Address:

City:

State:

Zip:

Submittal Date: Sun Mar 08 19:18:12 EDT 2026

Committee: NEC-P03



Public Input No. 1599-NFPA 70-2026 [Section No. 300.4(C)]

(C) Damaged Conductors and Wiring Methods.

Conductors and wiring methods that are no longer suitable for use due to damage, such as overheating, fire damage, corrosive influences, or water, shall not be permitted to be installed and if installed shall be replaced.

Informational Note No. 1: See NEMA GD 1-2019, *Evaluating Water-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by water.

Informational Note No. 2: See NEMA GD 2-2021, *Evaluating Fire- and Heat-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by fire or heat.

Statement of Problem and Substantiation for Public Input

This section was added to address damaged conductors that are installed in an application. This public input seeks to ensure that these damaged conductors are not used in an installation.

Submitter Information Verification

Submitter Full Name: Thomas Domitrovich

Organization: Eaton Corporation

Street Address:

City:

State:

Zip:

Submission Date: Tue Mar 17 12:25:44 EDT 2026

Committee: NEC-P03



Public Input No. 1767-NFPA 70-2026 [Section No. 300.4(C)]

(C) Damaged Conductors and Wiring Methods.

~~Conductors-~~ The portion of conductors and wiring methods that are no longer suitable for use due to damage, such as overheating, fire damage, corrosive influences, or water, shall be replaced.

Informational Note No. 1: See NEMA GD 1-2019, *Evaluating Water-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by water.

Informational Note No. 2: See NEMA GD 2-2021, *Evaluating Fire- and Heat-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by fire or heat.

Statement of Problem and Substantiation for Public Input

There are many ways to repair a damaged wire without replacing the entire conductor. by add "the portion of " it makes it clear that only the damaged portion needs to be replaced.

A damaged conductor could be shortened to the point where that there is no damage, and a listed splice can be used to add a new conductor thus repairing the portion of wire that was damaged.

By adding the words "the portion of" it acknowledges that this can be a repair to a branch circuit or feeder and not just a replacement.

I do believe that the original intent was to only replace the damaged wire portion, but by adding "the portion of" it adds clarity and will help with the interpretation and compliance of the code.

Submitter Information Verification

Submitter Full Name: Jon Coulimore

Organization: JC Electric, Inc.

Affiliation: IEC Codes & Standards

Street Address:

City:

State:

Zip:

Submission Date: Fri Mar 20 14:05:34 EDT 2026

Committee: NEC-P03



Public Input No. 2377-NFPA 70-2026 [Section No. 300.4(C)]

(C) Damaged Conductors and Wiring Methods.

Conductors and wiring methods that are no longer suitable for use due to damage, such as ~~overheating~~ severe physical impact, overheating, fire damage, corrosive influences, or water, shall be replaced.

Informational Note No. 1: See NEMA GD 1-2019, *Evaluating Water-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by water.

Informational Note No. 2: See NEMA GD 2-2021, *Evaluating Fire- and Heat-Damaged Electrical Equipment*, for information on electrical equipment and wiring methods damaged by fire or heat.

Statement of Problem and Substantiation for Public Input

Severe damage from a physical impact (Think, fork lift slamming into conduits.) ought to be a reason to replace wiring. This also aligns this section with 110.12(B) on the issue.

Submitter Information Verification

Submitter Full Name: Philip Ostrow

Organization: Ostrow Electric Company

Affiliation: NECA alternate member of NFPA 70 CMP 7

Street Address:

City:

State:

Zip:

Submittal Date: Thu Apr 02 14:15:15 EDT 2026

Committee: NEC-P03



Public Input No. 2043-NFPA 70-2026 [New Section after 300.5(B)(1)]

TITLE OF NEW CONTENT

Type your content here ...If service feeders are installed in parallel and the manufacture's EGC or GROUNDED conductor is supplied by manufacture, and if the articles are followed on sizing for the EGC at 250.122 for sub feeders for the OCPD and 250.102 (C)(1) for feeders on the conductors for wire size than this should be acceptable. Article 230.30 (B) states what type of conductors in raceways. We should be able to follow this with manufactures pre-sized EGC and Grounded and Un-Grounded conductors, assuming it is rated for sunlight and water and direct burial.

Statement of Problem and Substantiation for Public Input

If we parallel 250 should follow the manufacture spec assuming the branch circuit or sub feeders and feeders are sized based on loads and article 240.6

Submitter Information Verification

Submitter Full Name: Joshua Peterson

Organization: PETERSON ELECTRIC LLC

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 28 17:39:01 EDT 2026

Committee: NEC-P03



Public Input No. 1343-NFPA 70-2026 [Section No. 300.5(B)(1)]

(1) Paralleled Installations.

Conductors shall be permitted to be run in parallel in accordance with 310.10(G). The requirement to run all circuit conductors within the same raceway, auxiliary gutter, cable tray, trench, cable, or cord shall apply separately to each portion of the paralleled installation, and the equipment grounding conductors shall comply with 250.122. Connections, taps, or extensions made from paralleled conductors shall connect to all conductors of the paralleled set, ungrounded and grounded- ~~and ungrounded~~ , as applicable. Parallel runs in cable trays shall comply with 392.20(C).

Exception: Conductors installed in nonmetallic raceways run underground shall be permitted to be arranged as isolated phase ungrounded , - neutral grounded , and grounded conductor equipment grounding conductor installations. The raceways shall be installed in close proximity, and the isolated phase ungrounded , - neutral grounded , and grounded conductors equipment grounding conductors shall comply with 300. 7(I) Exception 2 and 300. 22(B).

Statement of Problem and Substantiation for Public Input

Editorial so that the text correlates with Exception 2 of 300.7(I).

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 07 19:43:52 EST 2026

Committee: NEC-P03



Public Input No. 769-NFPA 70-2026 [Section No. 300.5(B)(1)]

(1) Paralleled Installations.

Conductors shall be permitted to be run in parallel in accordance with 310.10(G). The requirement to run all circuit conductors within the same raceway, auxiliary gutter, cable tray, trench, cable, or cord shall apply separately to each portion of the paralleled installation, and the equipment grounding conductors shall comply with 250.122. Connections, taps, or extensions made from paralleled conductors shall connect to all conductors of the paralleled set, grounded and ungrounded, as applicable. Parallel runs in cable trays shall comply with 392.20(C).

Exception: Conductors installed in nonmetallic raceways run underground shall be permitted to be arranged as isolated phase, ~~neutral~~, and grounded conductor installations. The raceways shall be installed in close proximity, and the isolated phase, neutral, and grounded conductors shall comply with 300.22(B).

Statement of Problem and Substantiation for Public Input

Delete neutral since the term 'grounded' in the exception includes the neutral term. This is the only rule in the NEC where the term neutral and grounded are used in the same sentence.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jan 25 13:00:07 EST 2026

Committee: NEC-P03



Public Input No. 3374-NFPA 70-2026 [New Section after 300.5(B)(4)]

(5) Pre-wired/Prefabricated Panelboard Assemblies

Where a trough, pull or junction box with provisions for neutral terminations is used to contain splices or terminal blocks, the neutral conductors of circuits supplied by the panelboard shall be permitted to originate in the pull box provided it complies with all of the following:

- (1) Where conduit raceway is used between enclosures, the conduit shall be no more than 24" long.
- (2) The trough or junction box shall serve no other panelboard.
- (3) Ungrounded branch circuit and feeder conductors shall be identified in accordance with 210.5(C).
- (4) Grounded branch circuit conductors shall be identified in accordance with 200.6

Statement of Problem and Substantiation for Public Input

As the industry changes and manufacturing through prefabrication continues to gain prominence, this section of code will open up significant opportunity to allow for prefabrication assembly methods that not only provide value during construction, but continue to do so from a maintenance perspective.

Essentially, this new section would allow for prefabricated panelboard assemblies to mimic the exception granted for Column Width Panelboards as it relates to conductors of the same circuit running in the same raceway. Not only would this simplify the construction process by using less wiring, in the long term, it serves to better preserve the equipment during maintenance. Especially in industrial establishments, panelboards that are frequently added to or changed quickly degrade. The threaded holes become stripped, panel screws are dropped or missing, etc. By using a pull box above the panelboard, most branch circuit additions not requiring a new breaker can be tied in at the junction box, thus reducing the number of times in which the panel cover and dead front would need to be removed.

The conditions required to be met in this proposed section serve to prevent inductive heating when using conduit nipples between the junction box and panelboard enclosure. Furthermore, the use case for this type of assembly will primarily be industrial and/or heavy commercial establishments which means the system is likely to be three phase and more often than not, a WYE system. Thus the magnetic fields would generally cancel out when in the same short raceway. A wireway or auxiliary gutter between enclosures would be most ideal in general but can be particularly useful in retrofit situations. As for the trough or junction box only serving one panelboard, a long trough feeding multiple panelboards in this fashion could get very messy after years of maintenance. I do not believe that condition is COMPLETELY necessary for this code section, but I think it should be a consideration by the technical committee.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 3397-NFPA 70-2026 [New Section after 366.23(B)]	

Submitter Information Verification

Submitter Full Name: Troy Prefab

Organization: Superior Electric Great Lakes

Street Address:

City:

State:

Zip:

Submittal Date: Wed Apr 08 21:53:48 EDT 2026

Committee: NEC-P03



Public Input No. 780-NFPA 70-2026 [Section No. 300.5(C)(1)]

(1) 1000 Volts ac, 1500 volts dc, Nominal, or Less.

(a) *Insulation Voltage Rating.* Conductors of ac and dc circuits rated 1000 volts ac, 1500 volts dc, nominal, or less shall be permitted to occupy the same equipment wiring enclosure, cable, or raceway. All conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway.

(b) *Electric-Discharge Lamps.* Secondary wiring to electric-discharge lamps of 1000 volts ac, 1500 volts dc, nominal, or less, if insulated for the secondary voltage involved, shall be permitted to occupy the same luminaire, sign, or outline lighting enclosure as the branch-circuit conductors.

Informational Note No. 1: See 722.15 for ~~Class 2 and Class 3~~ limited energy circuit conductors and cables.

Informational Note No. ~~2~~ : See ~~722.15 for Class 4 circuit conductors.~~ Informational Note No. ~~3~~: See 690.31(B) for photovoltaic source and output circuits.

Statement of Problem and Substantiation for Public Input

The collective term "limited energy" was created for the 2026 NEC to minimize individually specifying the various circuits discussed in Chapters 7 and 8. This section is a posterchild of why we don't need to call out the circuits by name and can use the term "limited energy" instead.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Ryan Jackson Electrical Training

Street Address:

City:

State:

Zip:

Submission Date: Mon Jan 26 13:41:52 EST 2026

Committee: NEC-P03



Public Input No. 831-NFPA 70-2026 [Section No. 300.5(C)(2)]

~~(2) Over 1000 Volts ac, 1500 Volts dc, Nominal:~~

~~Conductors of circuits rated over 1000 volts ac or 1500 volts dc shall not occupy the same equipment wiring enclosure, cable, or raceway with conductors of circuits rated 1000 volts ac, 1500 volts dc, nominal, or less unless permitted in accordance with 305.13(B) :~~

Statement of Problem and Substantiation for Public Input

There is no need for this language once this article is moved to Chapter 2. Chapter 2 is titled "Systems below 1000VAC, 1500V DC and specifically exclude limited energy systems."

Submitter Information Verification

Submitter Full Name: Lawrence Ayer

Organization: Biz Com Electric, Inc.

Affiliation: IEC

Street Address:

City:

State:

Zip:

Submission Date: Fri Jan 30 15:57:21 EST 2026

Committee: NEC-P03



Public Input No. 1925-NFPA 70-2026 [Section No. 300.6]

300.6 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 that the edge of the hole is not less than 32 mm (1¼ in.) from the edges of the wood member.

Where this distance cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate(s) or bushing(s) at least 1.6 mm (⅛ in.) thick, and of appropriate length and width, installed to cover the area of the wiring.

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

Exception No. 2: A listed and marked steel plate less than 1.6 mm (⅛ 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 from penetration by nails or screws by a steel plate at least 1.6 mm (⅛ 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 (⅛ 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 (⅛ in.) in thickness shall be used to protect the cable or tubing.

Exception: A listed and marked steel plate less than 1.6 mm (⅛ 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 (1¼ 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) Wiring Methods and Materials in or Under Roof Decking.

Wiring methods and materials installed under roof decking shall be installed to maintain not less than 38 mm (1½ in.) separation from the lowest surface of the roof decking. Wiring methods shall not be installed in concealed locations in metal-corrugated, sheet decking-type roofs.

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

Exception No. 1: Rigid metal conduit and intermediate metal conduit, with listed steel or malleable iron fittings and boxes, shall not be required to comply with 300.6(E).

Exception No. 2: The 38 mm (1½ in.) spacing shall not be required where metal-corrugated sheet roof decking is covered with a minimum thickness 50 mm (2 in.) concrete slab, measured from the top of the corrugated roofing.

Exception No. 3: Wiring methods and materials shall be permitted in concealed locations where encased in concrete not less than 50 mm (2 in.) thick. Boxes and conduit bodies shall be installed in accordance with 314.29.

(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 (1¼-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 PVC conduit, RTRC, 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.

(I) Cables Run Across Accessible Attics or Roof Spaces.

(1) Readily Accessible with Permanent Means.

Where cables run across the top of framing members, or across the face of rafters or studding within 2.1 m (7 ft) of the walking surface and 1.8 m (6 ft) of the nearest edge of the readily accessible area, the cable shall be protected by guard strips that are at least as high as the cable.

(2) Not Accessible by Permanent Means.

Where this space is not accessible by permanently installed stairs or ladders, protection shall only be required within 1.8 m (6 ft) of the nearest edge of the scuttle hole or attic entrance.

Statement of Problem and Substantiation for Public Input

Proposed Addition

Add a new 300.6(I) to read as follows:

300.6(I) Cables Run Across Accessible Attics or Roof Spaces.

(1) Readily Accessible with Permanent Means.

Where cables run across the top of framing members, or across the face of rafters or studding within 2.1 m (7 ft) of the walking surface and 1.8 m (6 ft) of the nearest edge of the readily accessible area, the cable shall be protected by guard strips that are at least as high as the cable.

(2) Not Accessible by Permanent Means.

Where this space is not accessible by permanently installed stairs or ladders, protection shall only be required within 1.8 m (6 ft) of the nearest edge of the scuttle hole or attic entrance.

Proposed Deletion

Delete 320.23 in its entirety.
Delete 330.23 in its entirety.
Delete 334.23 in its entirety.

Substantiation

Requirements for protection of cables installed in accessible attics are currently distributed across multiple wiring method articles, including 320.23, 330.23, and 334.23. While similar in intent, these sections require users to navigate between multiple articles to determine applicable requirements, reducing usability of the Code.

The hazard addressed by these rules are dependent on the likelihood of physical damage due to accessibility and human activity within attic spaces. As such, these provisions are more appropriately located in Article 300, which governs general installation requirements.

This proposal introduces a new 300.6(l) to consolidate these provisions into a single, consistent requirement applicable to all cable types. This improves clarity, reduces redundancy, and enhances enforceability by eliminating the need to cross-reference multiple articles.

Additionally, this revision clarifies that protection is required primarily in areas that are readily accessible by permanent means, or in limited areas near attic access openings where access is reasonably expected. This aligns the requirement with actual installation conditions and reduces unnecessary installation of guard strips in remote areas of attics that are not subject to foot traffic or storage.

This proposal does not reduce safety, but instead improves clarity, consistency, and enforceability.

Cost Impact

The proposed changes are expected to reduce installation costs by eliminating redundant requirements and limiting unnecessary installation of guard strips in areas not subject to access, without reducing the level of safety.

Submitter Information Verification

Submitter Full Name: Rinor Krasniqi

Organization: City of Tamarac

Street Address:

City:

State:

Zip:

Submission Date: Thu Mar 26 09:52:53 EDT 2026

Committee: NEC-P03



Public Input No. 1825-NFPA 70-2026 [Sections 300.6(A)(1), 300.6(A)(2)]

Sections 300.6(A)(1), 300.6(A)(2)

(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 that the edge of the hole is not less than 32 mm (1¼ in.) from the edges of the wood member. Where this distance cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate(s) or bushing(s) at least 1.6 mm (⅙ in.) thick, and of appropriate length and width, ~~installed to~~ **on each side of wood member not less than 33mm (1-1/4 in.) 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 PVC conduit, RTRC, or electrical metallic tubing.

Exception No. 2: A listed and marked steel plate less than 1.6 mm (⅙ 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 from penetration by nails or screws by a steel plate at least 1.6 mm (⅙ in.) thick, and of appropriate length and width, ~~installed~~ **on each side of wood member not less than 33mm (1-1/4 in.) 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 (⅙ in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Bored_Holes_Notches.docx	Bored Holes & Notches Substantiation	
Public_Comment_297_NFPA70-2024.pdf	Submitted code change in 2024	
NFPA_Committee_Action_on_PC_297.pdf	Committee Action on PI #297	
PDF_2973_PI-1825_Bottom_of_Wall.pdf	Bottom of Wall	
PDF_2987_PI-1825_Center_of_Wall.pdf	Center of Wall	

Statement of Problem and Substantiation for Public Input

The proposed code change for the 2029 cycle is intended to clarify existing language which is essential to accurately convey the intent of the Code.

As an Electrical Inspector, I often find that certain provisions require multiple readings to fully understand their application. This can lead to varying interpretations in the field and requires additional discussion with contractors to ensure proper compliance. Improved clarity would benefit both inspectors and electricians.

Supporting documentation has been provided, including illustrations that identify the existing gap in

protection and substantiate the need for revision.

The 1¼-inch spacing requirement was introduced into the Code in 1990 to reduce the risk of physical damage to wiring systems and improve fire safety. However, data continues to show that risk remains. According to a February 2022 report by Richard Campbell of NFPA Research, approximately 8% of residential fires originate within wall assemblies and concealed spaces.

This proposal suggests that additional protection is warranted. Damage to conductors most commonly occurs at framing members, yet current requirements primarily address wiring installed parallel to framing. Conductors that cross framing members are equally vulnerable to physical damage from fasteners, drywall screws and nails.

Revising the language to require the 1¼-inch spacing or a steel plate at all points of potential physical damage—including where conductors cross framing members—would better align with the original safety intent of the Code.

Strengthening this requirement would enhance protection, reduce the likelihood of concealed wiring damage, and contribute to improved overall electrical fire safety.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 2425-NFPA 70-2026 [Section No. 300.6(D)]	Same submitter
Public Input No. 2425-NFPA 70-2026 [Section No. 300.6(D)]	

Submitter Information Verification

Submitter Full Name: Vincent LAPORTA

Organization: City of Seminole

Street Address:

City:

State:

Zip:

Submittal Date: Sun Mar 22 15:45:58 EDT 2026

Committee: NEC-P03



Public Comment No. 297-NFPA 70-2024 [Sections 300.6(A), 300.6(B), 300.6(C), 300.6(D)]

Sections 300.6(A), 300.6(B), 300.6(C), 300.6(D)

(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 that the edge of the hole is not less than 32 mm (1¼ in.) from the edges of the wood member. Where this distance cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate(s) or bushing(s) at least 1.6 mm (⅛ in.) thick, and of appropriate length and width, **but not less than 33mm (1-1/4in.) on either side of joist, rafter, wood or metal framing members** installed to cover the area of the wiring.

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

Exception No. 2: A listed and marked steel plate less than 1.6 mm (⅛ 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 from penetration by nails or screws by a steel plate at least 1.6 mm (⅛ in.) thick, and of appropriate length and width **but not less than 33mm (1-1/4in.) on either side of joist, rafter, wood or metal framing members** installed to cover the area of the wiring. The steel plate shall be installed before the building finish is applied.

Close

ADVANTAGES

- Higher R-Value = Greater Insulating Power
- Thinner Profile
- Durable Aluminum Facer
- Eliminates Need for HouseWrap
- Reflective Facer = Radiant Barrier
- Easy to Install



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HIGH PERFORMANCE FOAM INSULATION BOARD



R-Matte® Plus-3

THICKNESS	R-VALUE
1/2 inch	R-3.2
3/4 inch	R-5.0
1 inch	R-6.0
1 1/2 inch	R-9.6
2 inch	R-13.1

ADVANTAGES

- High R-Value
- Thin Profile
- Durable Aluminum Facer
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- Reflective Facer = Radiant Barrier
- Easy to Install



THICKNESS	R-VALUE
1/2 inch	R-3.2
3/4 inch	R-5.0
1 inch	R-6.0
1 1/2 inch	R-9.6
2 inch	R-13.1

Wiring is not protected a 1-1/4" from furring

- Bored holes if not drilled in the center of the 2x4 framing to get the 1- $\frac{1}{4}$ inch spacing. The only protection is over the top of the framing member. If the hole is not drilled in the center of framing as the wiring leaves the stud it no longer has protection of the 1- $\frac{1}{4}$ inches. Currently no protection is occurring in the field to the side of framing members even if less than 1- $\frac{1}{4}$ ".

- Notches in Wood When wiring passes through a notch cut in a wood member, a protection plate is used over the top of the notch but no protection is found within 1- $\frac{1}{4}$ inches to either side as the wire enters or exits the framing member.

The notch is never 1- $\frac{1}{4}$ in deep, it is only as deep as the wire thickness to get through to the next stud. As the wire passes through we don't have the 1- $\frac{1}{4}$ " in spacing, as in 300.6(D) for wire parallel to the stud. I believe the intent of the code is to protect the wire within the 1- $\frac{1}{4}$ " inches no matter if it's parallel to stud or horizontal to the stud, it should be consistent and protected.

Substantiation

Damaged wires hidden in walls have been linked to short circuits, shocks, and fires.

According to the NFPA (February 2022 report by Richard Campbell):

- U.S. fire departments responded to an estimated 32,620 home fires per year (2015–2019) involving electrical distribution and lighting equipment.
- Fires most often originated in:
 - Bedrooms: 16%
 - Attics or ceilings: 11%
 - Wall assemblies or concealed spaces: 8% (2,600 fires annually)

Below is my Public Input of my last code change submission for the 2026 NEC. I have made original copies in file for you to see.

Public Input No. 297-NFPA 70-2024. Sections 300.6(A) (B)

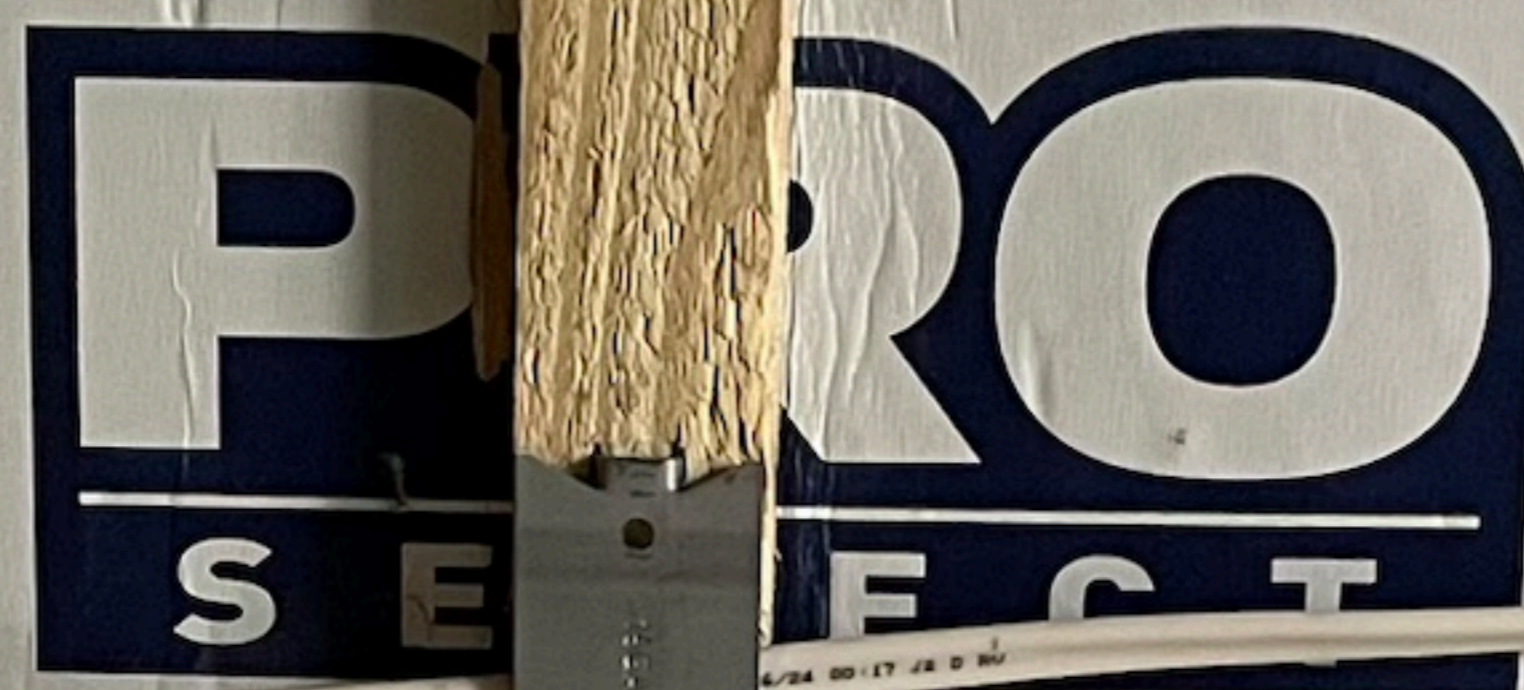
(1) Bored Holes.

.....at least 1.6mm (1/16 in. Thick and of appropriate length and width, but not less than 33mm (1-¼" in.) on either side of joist, rafter, wood or metal framing members.

I received the Committee Action Response to my public comment was Rejected: But it seemed like I was on the right track when the response message was; *The added text is not needed because the word "edges" in the first sentence states the same as the added text.*

The problem is that the code article is not being interpreted that way in the field by contractors or inspectors. The intent of the code it seems is being lost. So I would like to try again (my 3rd time) to clarify the code and its intent that the wiring shall be protected within 1-¼" inch from the side of the framing member also.

New text can be added in bold to 300.6 (A) (1 &2) below *a steel plate(s) or bushings at least 1.6mm (1/16in.) thick, and of appropriate length and width **not less than 33mm (1-¼ in.) on each side of the wood member.***



HIGH PERFORMANCE FIBERGLASS INSULATION BOARD

Wire is not protected within 1-1/4"



Garage

Basement

Attic

Roof

Exterior Walls

Crawl Space



R-Ma

THICKNES

1/2 inch

3/4 inch

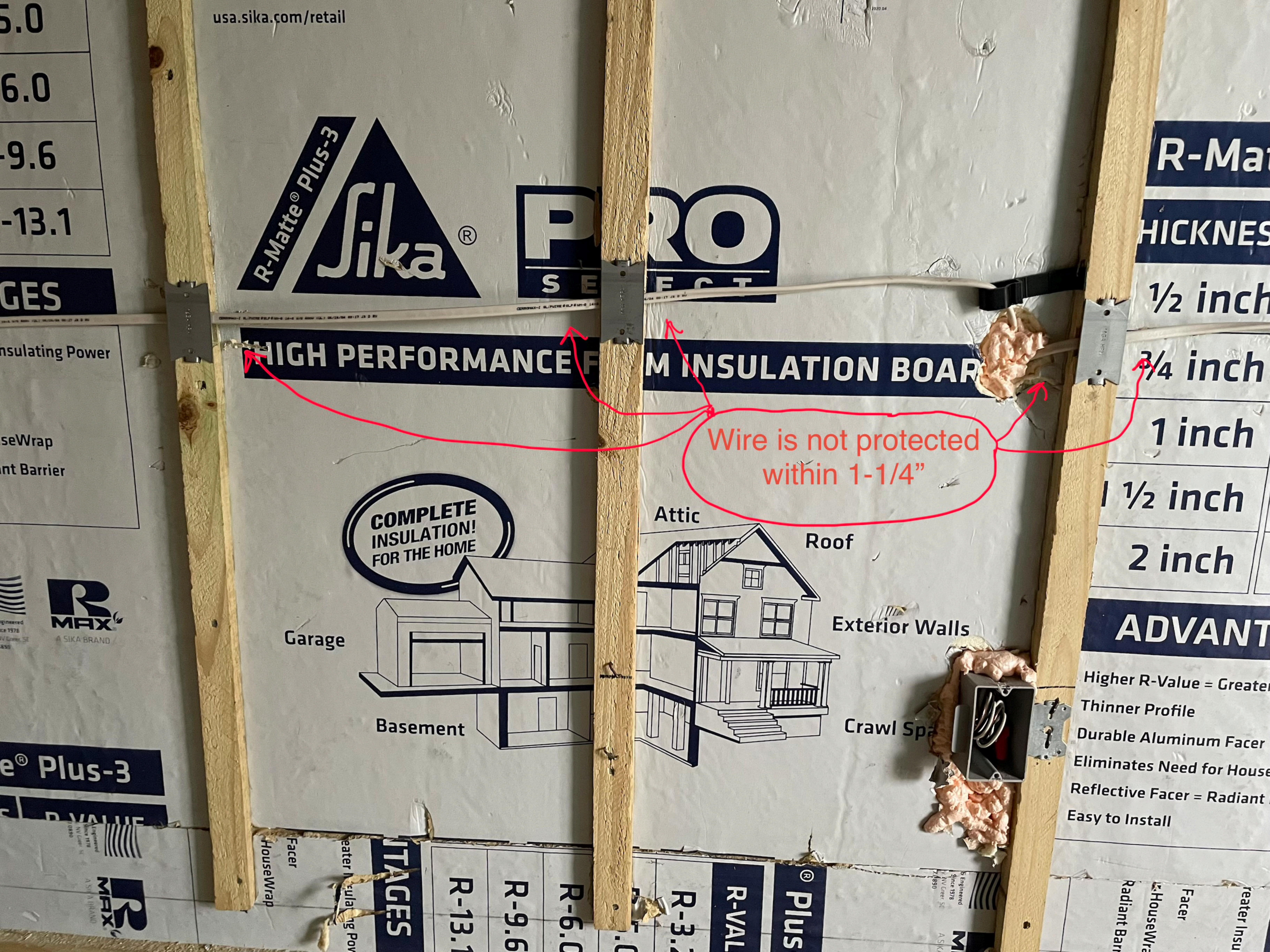
1 inch

1 1/2 inch

2 inch

ADVANT

- Higher R-Value = Greater
- Thinner Profile
- Durable Aluminum Facer
- Eliminates Need for House
- Reflective Facer = Radiant
- Easy to Install





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NFPA Standard: ALL

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PC-297-NFPA 70-2024 submitted by [Vincent LAPORTA] on Sun Jul 28 16:00:46 EDT 2024

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Public Comment No. 297-NFPA 70-2024

Sections 300.6(A), 300.6(B), 300.6(C), 300.6(D)

Committee Action: Rejected

Response Message: The added text is not needed because the word "edges" in the first sentence states the same as the added text.

REVIEWED

Close

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



TITLE OF NEW CONTENT

(D1) Cables and Raceways Horizontally Above & Below Vertical Furring Strips

In both exposed and concealed locations, where a cable- or raceway-type wiring method is installed horizontally above and below vertical furring strips. The wiring in line with the vertical furring shall be protected. The cable or raceway shall be installed, supported and protected over the top as it crosses the vertical furring strip with extended protection to both sides of the furring strip not less than 32 mm (1-¼ in.) from the side edge where nails or screws are likely to penetrate. 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.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Substantiation.1775700390664.docx	Substantiation	
IMG_0659.pdf	Vertical Furring	

Statement of Problem and Substantiation for Public Input

This proposal suggests that additional protection is warranted. Damage to conductors most commonly occurs at furring strips yet current requirements primarily address wiring installed parallel to framing. Conductors that cross above or below where the furring strips stop that are in-line with the furring strip are equally vulnerable to physical damage from fasteners, drywall screws and nails. Revising the language to also require the 1¼-inch spacing or a steel plate at all points of potential physical damage—including where conductors cross furring strips—would better align with the original safety intent of the Code. Strengthening this requirement would enhance protection, reduce the likelihood of concealed wiring damage, and contribute to improved overall electrical fire safety.

Substantiation:

Current requirements in NEC 300.6 (D) Does not adequately address the installation of cables or raceways run horizontally above and below vertical furring strips, which is a common construction practice in both residential and commercial buildings. In these applications, furring strips are typically ¾ inch thick and often do not extend fully to the top plate or down to the baseboard. This results in conductors being installed in line with the vertical furring strips but left unprotected in these transition areas, where nails or screws are likely to penetrate during the installation of wall finishes. NEC 300.6(D) establishes the principle that cables and raceways installed parallel to furring strips must maintain a 1¼-inch separation from edges or be protected by a steel plate or equivalent. This reflects the clear intent of the Code to provide consistent protection from fastener penetration. However, the current language does not explicitly address the condition where conductors are installed horizontally above and below vertical furring strips, resulting in inconsistent interpretation and enforcement in the field. Installations may technically comply with minimal protection directly over the furring strip if the cable or raceway goes through it. While failing to protect the conductor within the full

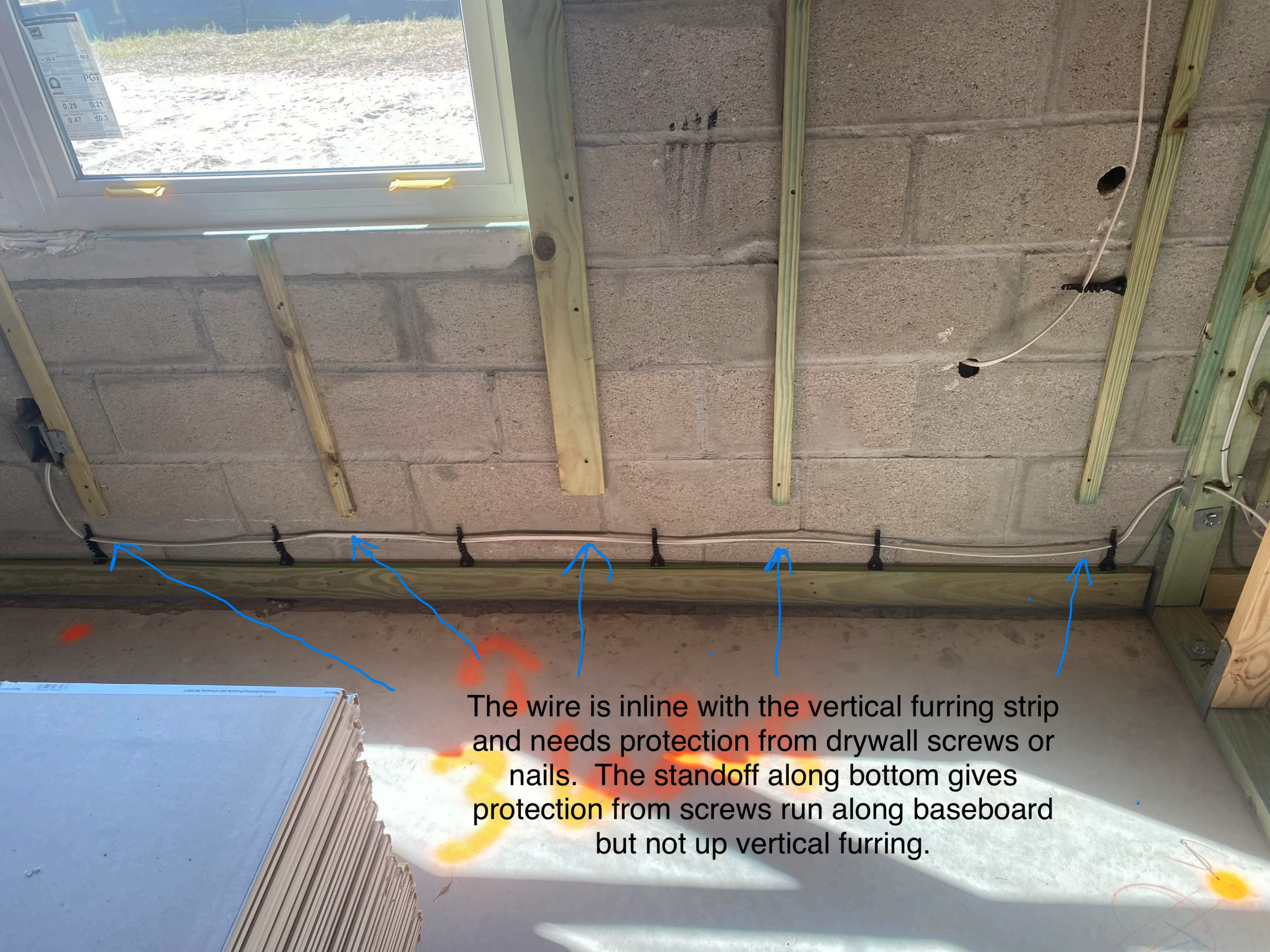
area where fasteners are likely to be installed above or below the vertical furring. The proposed new subsection (D1) addresses this gap by requiring protection when the cable or raceway is run above or below the vertical furring. Plus extending laterally to cover the full 1¼-inch zone on both sides. This clarification aligns with the intent of NEC 300.6 (D), improves consistency with similar provisions, and better reflects real-world construction practices. By requiring continuous protection in these areas, the proposed revision enhances safety by reducing the likelihood of conductor damage, electrical faults, and potential fire hazards caused by fastener penetration. This provides clearer guidance for installers and inspectors and ensures a more uniform level of protection across all applicable installations.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 2425-NFPA 70-2026 [Section No. 300.6(D)]</u>	Same submitter

Submitter Information Verification

Submitter Full Name: Vincent LAPORTA
Organization: City of Seminole
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 02 13:49:16 EDT 2026
Committee: NEC-P03



The wire is inline with the vertical furring strip and needs protection from drywall screws or nails. The standoff along bottom gives protection from screws run along baseboard but not up vertical furring.

Substantiation:

Current requirements in NEC 300.6 (D) Does not adequately address the installation of cables or raceways run horizontally above and below vertical furring strips, which is a common construction practice in both residential and commercial buildings. In these applications, furring strips are typically $\frac{3}{4}$ inch thick and often do not extend fully to the top plate or down to the baseboard. **This results in conductors being installed in line with the vertical furring strips but left unprotected in these transition areas, where nails or screws are likely to penetrate during the installation of wall finishes.**

NEC 300.6(D) establishes the principle that cables and raceways installed parallel to furring strips must maintain a $1\frac{1}{4}$ -inch separation from edges or be protected by a steel plate or equivalent. This reflects the clear intent of the Code to provide consistent protection from fastener penetration.

However, the current language does not explicitly address the condition where conductors are installed horizontally above and below vertical furring strips, resulting in inconsistent interpretation and enforcement in the field. Installations may technically comply with minimal protection directly over the furring strip if the cable or raceway goes through it. While failing to protect the conductor within the full area where fasteners are likely to be installed above or below the vertical furring.

The proposed new subsection (D1) addresses this gap by requiring protection when the cable or raceway is run above or below the vertical furring. Plus extending laterally to cover the full $1\frac{1}{4}$ -inch zone on both sides. This clarification aligns with the intent of NEC 300.6 (D), improves consistency with similar provisions, and better reflects real-world construction practices.

By requiring continuous protection in these areas, the proposed revision enhances safety by reducing the likelihood of conductor damage, electrical faults, and potential fire hazards caused by fastener penetration. This provides clearer guidance for installers and inspectors and ensures a more uniform level of protection across all applicable installations.



Public Input No. 2425-NFPA 70-2026 [Section No. 300.6(D)]

(D) Cables and Raceways Parallel or Horizontal to Framing Members and Furring Strips.

In both exposed and concealed locations, where a cable- or raceway-type wiring method is installed ~~parallel to~~ parallel or horizontal to framing members, such as joists, rafters, or studs, or is installed parallel or horizontal 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 (1¼ in.) from the nearest front or side 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 (⅙ 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 (⅙ in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Public_Comment_297_NFPA70-2024.pdf	Public Comment from 2024	
NFPA_Committee_Action_on_PC_297.pdf	Committee Action on PC #297	
PDF_2987_Center_of_Wall.pdf	Center of Wall	
PDF_2973_Bottom_of_Wall.pdf	Bottom of Wall	

Statement of Problem and Substantiation for Public Input

The proposed code change for the 2029 cycle is intended to clarify existing language which is essential to accurately convey the intent of the Code.

As an Electrical Inspector, I often find that certain provisions require multiple readings to fully understand their application. This can lead to varying interpretations in the field and requires additional discussion with contractors to ensure proper compliance. Improved clarity would benefit both inspectors and electricians.

Supporting documentation has been provided, including illustrations that identify the existing gap in protection and substantiate the need for revision.

The 1¼-inch spacing requirement was introduced into the Code in 1990 to reduce the risk of physical damage to wiring systems and improve fire safety. However, data continues to show that risk remains. According to a February 2022 report by Richard Campbell of NFPA Research, of the 32,620 home fires in the USA, approximately 8% of residential fires originate within wall assemblies and concealed spaces.

This proposal suggests that additional protection is warranted. Damage to conductors most commonly occurs at framing members, yet current requirements primarily address wiring installed parallel to framing. Conductors that cross framing members are equally vulnerable to physical damage from fasteners, drywall screws and nails.

Revising the language to require the 1¼-inch spacing or a steel plate at all points of potential physical damage—including where conductors cross framing members—would better align with the original

safety intent of the Code.

Strengthening this requirement would enhance protection, reduce the likelihood of concealed wiring damage, and contribute to improved overall electrical fire safety.

Substantiation:

Field installations involving furring strips on masonry or block walls routinely fail to provide the required 1¼-inch protection zone as intended by NEC 300.6(D). Furring strips are typically ¾ inch thick, which makes it impossible to maintain the minimum 1¼-inch clearance from the face or side edge of the framing member. As a result, cables installed horizontally across furring strips remain vulnerable to physical damage from nails or screws, with protection limited only to the immediate area directly over the strip.

NEC 300.6(D) establishes that cables and raceways installed parallel to framing members or furring strips must be kept a minimum 1¼-inch from the edge or otherwise safeguarded by a steel plate or equivalent. This requirement reflects the clear intent of the Code to protect wiring from fastener penetration. However, current application of 300.6 (D) does not consistently address this condition where conductors cross the furring members, resulting in incomplete protection.

Clarification is needed to ensure that the required 1¼-inch protection zone is maintained in all directions where fasteners are likely to penetrate, especially installations involving furring strips. This will improve consistency within Article 300.6 (D) and enhance protection against physical damage in real-world construction practices.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 1825-NFPA 70-2026 [Sections 300.6(A)(1), 300.6(A)(2)]	Same submitter
Public Input No. 1825-NFPA 70-2026 [Sections 300.6(A)(1), 300.6(A)(2)]	
Public Input No. 2375-NFPA 70-2026 [New Section after 300.6(D)]	

Submitter Information Verification

Submitter Full Name: Vincent LAPORTA

Organization: City of Seminole

Street Address:

City:

State:

Zip:

Submission Date: Thu Apr 02 20:54:34 EDT 2026

Committee: NEC-P03



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NFPA Standard: ALL

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PC-297-NFPA 70-2024 submitted by [Vincent LAPORTA] on Sun Jul 28 16:00:46 EDT 2024

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Public Comment No. 297-NFPA 70-2024

Sections 300.6(A), 300.6(B), 300.6(C), 300.6(D)

Committee Action: Rejected

Response Message: The added text is not needed because the word "edges" in the first sentence states the same as the added text.

REVIEWED

Close

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

ADVANTAGES

- Higher R-Value = Greater Insulating Power
- Thinner Profile
- Durable Aluminum Facer
- Eliminates Need for HouseWrap
- Reflective Facer = Radiant Barrier
- Easy to Install



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HIGH PERFORMANCE FOAM INSULATION BOARD



R-Matte® Plus-3

THICKNESS	R-VALUE
1/2 inch	R-3.2
3/4 inch	R-5.0
1 inch	R-6.0
1 1/2 inch	R-9.6
2 inch	R-13.1

ADVANTAGES

- High R-Value
- Thin Profile
- Durable Aluminum Facer
- Eliminates Need for HouseWrap
- Reflective Facer = Radiant Barrier
- Easy to Install



HIGH PERFORMANCE FOAM INSULATION BOARD



- High R-Value
- Thin Profile
- Durable Aluminum Facer
- Eliminates Need for HouseWrap
- Reflective Facer = Radiant Barrier
- Easy to Install

Wiring is not protected a 1-1/4" from furring

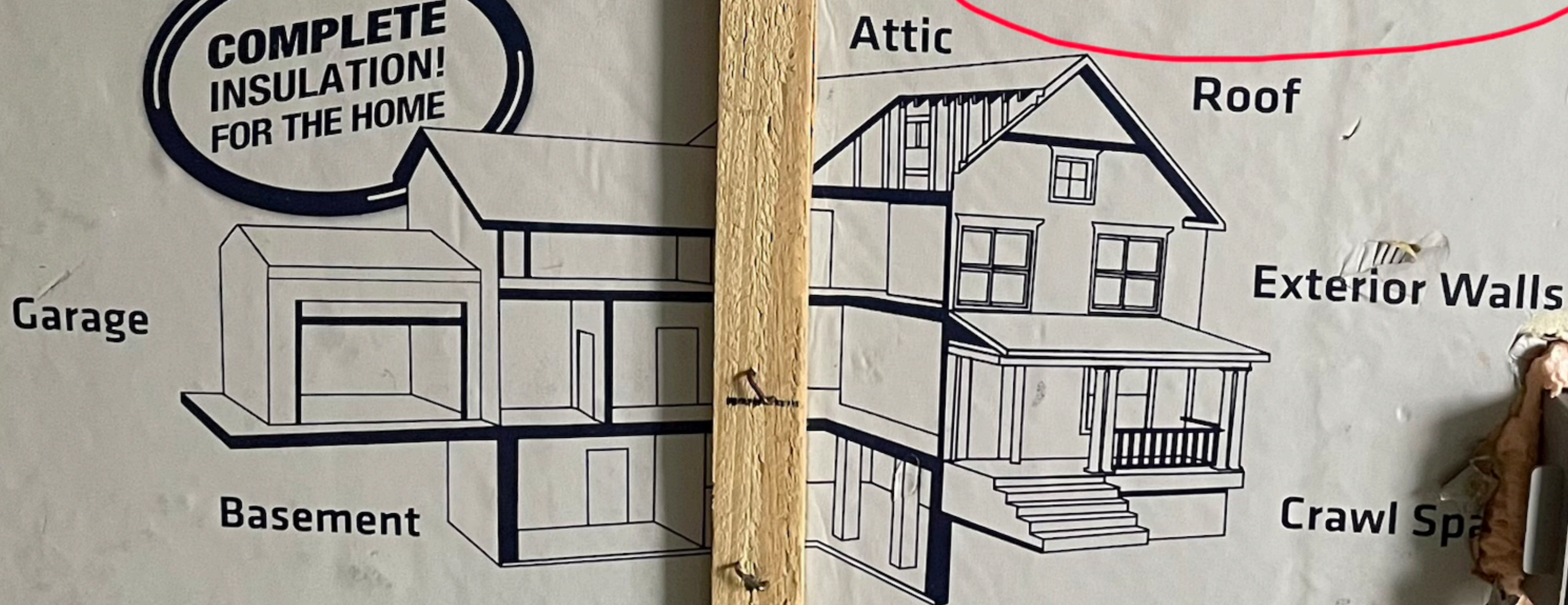


PRO SECT

HIGH PERFORMANCE F M INSULATION BOARD

Wire is not protected within 1-1/4"

COMPLETE INSULATION! FOR THE HOME



R-Ma

THICKNES

1/2 inch

3/4 inch

1 inch

1 1/2 inch

2 inch

ADVANT

- Higher R-Value = Greater
- Thinner Profile
- Durable Aluminum Facer
- Eliminates Need for House
- Reflective Facer = Radiant
- Easy to Install

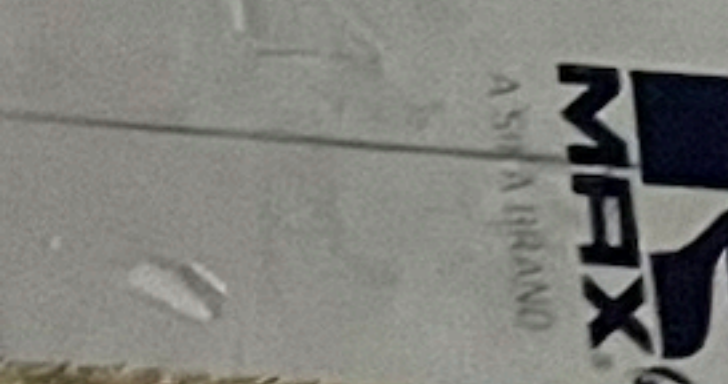
5.0
6.0
9.6
13.1
GES

Insulating Power
seWrap
nt Barrier



e Plus-3

D VALUE

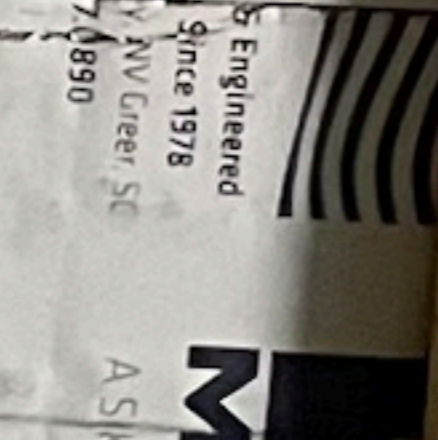


HouseWrap Facer

ATTAGES

R-13.1
R-9.6
R-6.0

R-3.2
R-VAL
Plus



reater Insu
Facer
HouseWra
Radiant Barr



Public Comment No. 297-NFPA 70-2024 [Sections 300.6(A), 300.6(B), 300.6(C), 300.6(D)]

Sections 300.6(A), 300.6(B), 300.6(C), 300.6(D)

(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 that the edge of the hole is not less than 32 mm (1¼ in.) from the edges of the wood member. Where this distance cannot be maintained, the cable or raceway shall be protected from penetration by screws or nails by a steel plate(s) or bushing(s) at least 1.6 mm (⅛ in.) thick, and of appropriate length and width, **but not less than 33mm (1-1/4in.) on either side of joist, rafter, wood or metal framing members** installed to cover the area of the wiring.

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

Exception No. 2: A listed and marked steel plate less than 1.6 mm (⅛ 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 from penetration by nails or screws by a steel plate at least 1.6 mm (⅛ in.) thick, and of appropriate length and width **but not less than 33mm (1-1/4in.) on either side of joist, rafter, wood or metal framing members** installed to cover the area of the wiring. The steel plate shall be installed before the building finish is applied.

Close



Public Input No. 913-NFPA 70-2026 [Section No. 300.6(D)]

(D) Cables and Raceways ~~Parallel~~ Running Adjacent to Framing Members and Furring Strips.

In both exposed and concealed locations, where a cable- or raceway-type wiring method is installed ~~parallel~~ running adjacent 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 (1¼ 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.

Statement of Problem and Substantiation for Public Input

In the response to Public Input No. 1027-NFPA 70-2023 for the 2026 NEC First Draft, the committee wrote:

"Nails or screws are likely to penetrate cable or raceways within 6 inches either above or below a device box if the 1 ¼" spacing from the nearest edge of the framing member is not maintained. 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."

However, in this region in the vicinity of a box installed on a framing member, a cable is usually not running parallel to the framing member, as it jogs diagonally away from the framing member towards the opening in the box some distance away from the framing member. So a strict reading of the word "parallel" in 300.6(D) would lead to the conclusion that no protection is required for such diagonally run cable.

Thus if the committee wishes for it to be clearer that such protection is required in the vicinity of a box under the conditions specified in the quote, I suggest changing the term "parallel to" to "running adjacent to". This term was chosen over just "adjacent to" to exclude the case of cables running perpendicular to framing members.

Submitter Information Verification

Submitter Full Name: Wayne Whitney

Organization: Whitney

Street Address:

City:

State:

Zip:

Submission Date: Fri Feb 06 11:34:31 EST 2026



Public Input No. 1600-NFPA 70-2026 [Section No. 300.6(E)]

(E) Wiring Methods and Materials in or Under Roof Decking.

Wiring methods and materials installed under roof decking shall be installed to maintain not less than 38 mm (1½ in.) separation from the lowest surface of the roof decking. Wiring methods shall not be installed in concealed locations in metal-corrugated, sheet decking-type roofs.

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

Exception No. 1: Rigid metal conduit and intermediate metal conduit, with listed steel or malleable iron fittings and boxes, shall not be required to comply with 300.6(E).

Exception No. 2: The 38 mm (1½ in.) spacing shall not be required where metal-corrugated sheet roof decking is covered with a minimum thickness 50 mm (2 in.) concrete slab, measured from the top of the corrugated roofing.

Exception No. 3: Wiring methods and materials shall be permitted in concealed locations where encased in concrete not less than 50 mm (2 in.) thick. Boxes and conduit bodies shall be installed in accordance with 314.29.

Informational Note: Wiring methods and materials can be considered as encased in 50 mm (2 in.) of concrete when the wiring method or material is encircled with 50 mm (2 in.) of concrete.

Statement of Problem and Substantiation for Public Input

exception No. 3 differs from Exception No. 2 in that the language found in Exception No. 2 which states that concrete is measured from the top of the corrugated roofing is not found in new Exception no. 3. Simply saying "where encased in concrete not less than 50 mm (2 in.) thick" does not indicate that you need 2 inches of concrete on top and bottom of the raceway or wiring method. The concrete must be 2 inches thick, not 2 inches above and below the raceway. This informational note adds clarity for what is intended for exception no. 3.

Submitter Information Verification

Submitter Full Name: Thomas Domitrovich

Organization: Eaton Corporation

Street Address:

City:

State:

Zip:

Submission Date: Tue Mar 17 12:58:44 EDT 2026

Committee: NEC-P03



Public Input No. 3087-NFPA 70-2026 [Section No. 300.6(E)]

(E) Wiring Methods and Materials in or Under Roof Decking.

Wiring methods and materials installed under roof decking shall be installed to maintain not less than 38 mm (1½ in.) separation from the lowest surface of the roof decking. Wiring methods shall not be installed in concealed locations in metal-corrugated, sheet decking-type roofs.

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

Exception No. 1: Rigid metal conduit and intermediate metal conduit, with listed steel or malleable iron fittings and boxes, shall not be required to comply with 300.6(E).

Exception No. 2: The 38 mm (1½ in.) spacing shall not be required where metal-corrugated sheet roof decking is covered with a minimum thickness 50 mm (2 in.) concrete slab, measured from the top of the corrugated roofing.

Exception No. 3: Wiring methods and materials shall be permitted in concealed locations where encased in concrete not less than 50 mm (2 in.) thick. Boxes and conduit bodies shall be installed in accordance with 314.29.

Statement of Problem and Substantiation for Public Input

This note was accurate prior to the 2026 NEC. Now that this rule applies to all types of roof decks the note is no longer accurate and should be removed.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Ryan Jackson Electrical Training

Street Address:

City:

State:

Zip:

Submission Date: Tue Apr 07 19:24:10 EDT 2026

Committee: NEC-P03



Public Input No. 912-NFPA 70-2026 [Section No. 300.6(G)]

(G) Fittings.

(A) 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

(B) 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.

(C) See IMC 342.46, RMC 344.46, HDPE 353.46, PVC 352.46, NVCC 354.46, RTRC 355.46, and ENT 362.46 for specific bushing requirements.

Informational Note: Certain raceways may require bushings where circuit conductors are smaller than 4 AWG. For example, Rigid Metal Conduit field threaded will have very sharp edges which may damage any size conductor, and where the conduit enters a box, fitting, or other enclosure may require a bushing to protect the wires from abrasion, regardless of wire size, unless the fitting itself provides the equivalent protection.

Statement of Problem and Substantiation for Public Input

When installing field threaded raceways and certain raceway fittings, installers may not be aware that conductors smaller than 4 AWG may require protection with a bushing or fitting that provides protection of the wires. The reference to the xxx.46 raceway article combined with the informational note will help provide said guidance.

Submitter Information Verification

Submitter Full Name: Paul Cormier

Organization: Cormier's Code Class

Affiliation: Cormier's Code Class

Street Address:

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Zip:

Submission Date: Fri Feb 06 11:03:44 EST 2026

Committee: NEC-P03



Public Input No. 2301-NFPA 70-2026 [New Section after 300.6(H)]

300.6(I) Cables in Accessible Attics or Roof Spaces.

Cable assemblies installed across the top of framing members within 2.1 m (7 ft) of the floor or horizontal surface, in accessible attics or roof spaces, shall be installed as specified in 300.6(I)(1) and 300.6(I)(2).

(1) Accessible by Permanent Means.

If the attic or roof space is accessible by permanently installed stairs or ladders, the cable shall be protected by guard strips that are at least as high as the cable.

(2) Not Accessible by Permanent Means.

Where the attic or roof space is not accessible by permanently installed stairs or ladders, protection shall only be required within a 1.8 m (6 ft) radius of the nearest edge of the scuttle hole or attic entrance.

Statement of Problem and Substantiation for Public Input

Currently, the requirements for cables in accessible attics and roof spaces is in 320.23, which is specific to AC Cable, Type MC Cable (330.23), Type NM Cable (334.23), Type TC Cable (336.10(9), where installed as TC-ER-JP, thus complying with Part II of Article 334), Type SE Cable (338.10(4), which refers to Part II of Article 334), and Type UF Cable (340.10(4), where installed as NM cable) all refer back to section 320.23, when they are installed under these conditions.

Moving section 320.23 to a subdivision in 300.6 would generalize the requirement, and enhance the readability of the document, by eliminating the need to read through specific cable assembly articles to find these rules.

One possible concern with this change would be that it applied to all general cable assemblies. However:

- FC Cable is installed in surface metal raceways, and wouldn't apply here.
- FCC Cable wouldn't apply here, being under carpet squares.
- IGS can't be installed in buildings.
- MI: This is one of the few cable assemblies that didn't have these provisions apply to it. However, if MI cable was installed in an accessible attic or roof space on the top of a stud or joist, would it not need to be protected?
- ITC generally isn't installed without some sort of cable tray, raceway, or armor.
- Type P Cable is also somewhat limited in scope, particularly being installed under engineering supervision.

AC, MC, NM, TC, SE, and UF either directly referenced 320.23, or did so vis-a-vis complying with the requirements of an article that did directly reference that section.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 2305-NFPA 70-2026</u> <u>[Section No. 320.23]</u>	Original section containing language proposed to be moved to 300.6(I)
<u>Public Input No. 2306-NFPA 70-2026</u> <u>[Section No. 330.23]</u>	
<u>Public Input No. 2307-NFPA 70-2026</u> <u>[Section No. 334.23]</u>	

Public Input No. 2305-NFPA 70-2026
[Section No. 320.23]

Public Input No. 2306-NFPA 70-2026
[Section No. 330.23]

Public Input No. 2307-NFPA 70-2026
[Section No. 334.23]

Submitter Information Verification

Submitter Full Name: Steven Worsley

Organization: NECA IBEW Electrical JATC

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Submittal Date: Wed Apr 01 12:59:31 EDT 2026

Committee: NEC-P03



Public Input No. 1544-NFPA 70-2026 [Section No. 300.7(A)]

(A) Minimum Cover Requirements.

Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum cover requirements of Table 300.7(A).

Table 300.7(A) Minimum Cover Requirements, 0 to 1000 Volts ac, 1500 Volts dc, Nominal, Burial in Millimeters (Inches)

<u>Location of Wiring Method or Circuit</u>	<u>Type of Wiring Method or Circuit</u>									
	<u>Column 1</u>		<u>Column 2</u>		<u>Column 3</u>		<u>Column 4</u>		<u>Column 5</u>	
	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>
All locations not specified below	600	24	150	6	450	18	300	12	150 ^{1,2}	6 ^{1,2}
In trench below 50 mm (2 in.) thick concrete or equivalent	450	18	150	6	300	12	150	6	150	6
Under a building	0	0	0	0	0	0	0	0	0	0
			(in raceway or Type MC or Type MI cable identified for direct burial)	-	-	-	-			(in raceway or Type MC or Type MI cable identified for direct burial)
Under minimum of 102 mm (4 in.) thick concrete exterior slab with no vehicular traffic and the slab	450	18	100	4	100	4	150	6	150	6
							(direct burial)			(direct burial)

extending not less than 152 mm (6 in.) beyond the underground installation						100 4 (in raceway)	100 4 (in raceway)
Under streets, highways, roads, alleys, driveways, and parking lots	600 24	600 24	600 24	600 24	600 24	600 24	600 24
One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes	450 18	450 18	450 18	450 18	300 12	450 18	450 18
In or under airport runways, including adjacent areas where trespassing is prohibited	450 18	450 18	450 18	450 18	450 18	450 18	450 18

¹A lesser depth shall be permitted where specified in the installation instructions of a listed low-voltage lighting system.

²A depth of 150 mm (6 in.) shall be permitted for pool, spa, and fountain lighting, installed in a nonmetallic raceway, limited to not more than 30 volts where part of a listed low-voltage lighting system.

Notes:

1. Cover shall be defined as the shortest distance in mm (in.) measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.
2. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 50 mm (2 in.) thick.
3. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.
4. Where one of the wiring method types listed in Columns 1 through 3 is used for one of the circuit types in Columns 4 and 5, the shallowest depth of burial shall be permitted.
5. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in a metal raceway, or a nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 50 mm (2 in.) of concrete extending down to rock.
6. Directly buried electrical metallic tubing (EMT) shall comply with 358.10.

Statement of Problem and Substantiation for Public Input

Direct Bore is a common installation method that uses nonmetallic raceways. This update to the header of Column 3 would more explicitly group this installation method with similar methods already noted in the code.

Submitter Information Verification

Submitter Full Name: Samuel Fopma

Organization: Interstates

Affiliation: IEC Codes & Standards

Street Address:

City:

State:

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Submittal Date: Mon Mar 16 13:17:01 EDT 2026

Committee: NEC-P03



Public Input No. 1723-NFPA 70-2026 [Section No. 300.7(A)]

(A) Minimum Cover Requirements.

Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum cover requirements of Table 300.7(A).

Table 300.7(A) Minimum Cover Requirements, 0 to 1000 Volts ac, 1500 Volts dc, Nominal, Burial in Millimeters (Inches)

<u>Location of Wiring Method or Circuit</u>	<u>Type of Wiring Method or Circuit</u>									
	<u>Column 1</u>		<u>Column 2</u>		<u>Column 3</u>		<u>Column 4</u>		<u>Column 5</u>	
	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>
All locations not specified below	600	24	150	6	450	18	300	12	150 ^{1,2}	6 ^{1,2}
In trench below 50 mm (2 in.) thick concrete or equivalent	450	18	150	6	300	12	150	6	150	6
Under a building	0	0	0	0	0	0	0	0	0	0
			(in raceway or Type MC or Type MI cable identified for direct burial)	-	-	-	-			(in raceway or Type MC or Type MI cable identified for direct burial)
Under minimum of 102 mm (4 in.) thick concrete exterior slab with no vehicular traffic and the slab	450	18	100	4	100	4	150	6	150	6
							(direct burial)			(direct burial)

extending not less than 152 mm (6 in.) beyond the underground installation						100 4 (in raceway)	100 4 (in raceway)
Under streets, highways, roads, alleys, driveways, and parking lots	600 24	600 24	600 24	600 24	600 24	600 24	600 24
One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes	450 18	450 18	450 18	450 18	300 12	450 18	450 18
In or under airport runways, including adjacent areas where trespassing is prohibited	450 18	450 18	450 18	450 18	450 18	450 18	450 18

¹A lesser depth shall be permitted where specified in the installation instructions of a listed low-voltage lighting system.

²A depth of 150 mm (6 in.) shall be permitted for pool, spa, and fountain lighting, installed in a nonmetallic raceway, limited to not more than 30 volts where part of a listed low-voltage lighting system.

Notes:

1. Cover shall be defined as the shortest distance in mm (in.) measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.
2. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 50 mm (2 in.) thick.
3. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.
4. Where one of the wiring method types listed in Columns 1 through 3 is used for one of the circuit types in Columns 4 and 5, the shallowest depth of burial shall be permitted.
5. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in a metal raceway, or a nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 50 mm (2 in.) of concrete extending down to rock.
6. Directly buried electrical metallic tubing (EMT) shall comply with 358.10.

Statement of Problem and Substantiation for Public Input

This public input is being submitted on behalf of the Minnesota Department of Labor and Industry. Currently, the Department's electrical inspection staff includes 15 office/field staff, 77 state field electrical inspectors and 11 virtual inspectors that completed over 190,000 electrical inspections in 2025.

When GFCI protection is applied, the electrical shock and safety risk to personnel is covered in UL943, not by the nominal system voltage. GFCI protection limits ground-fault current to a safe level regardless of whether the circuit is 120 volts or up to 150 volts to ground as covered in other NEC sections. By allowing up to 150 volts to ground, the 250-volt (double pole) branch circuits at a residence could be direct buried at 12" when provided with GFCI protection.

Submitter Information Verification

Submitter Full Name: Dean Hunter

Organization: Minnesota Department of Labor

Street Address:

City:

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Submittal Date: Thu Mar 19 15:48:15 EDT 2026

Committee: NEC-P03



Public Input No. 472-NFPA 70-2025 [Section No. 300.7(A)]

(A) Minimum Cover Requirements.

Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum cover requirements of Table 300.7(A).

Table 300.7(A) Minimum Cover Requirements, 0 to 1000 Volts ac, 1500 Volts dc, Nominal, Burial in Millimeters (Inches)

<u>Location of Wiring Method or Circuit</u>	<u>Type of Wiring Method or Circuit</u>									
	<u>Column 1</u>		<u>Column 2</u>		<u>Column 3</u>		<u>Column 4</u>		<u>Column 5</u>	
	<u>Direct Burial Cables or Conductors</u>	<u>Rigid Metal Conduit or Intermediate Metal Conduit</u>	<u>Electrical Metallic Tubing,</u>	<u>Nonmetallic Raceways Listed for Direct Burial Without Concrete Encasement, or Other Approved Raceways</u>	<u>Residential Branch Circuits Rated 120 Volts or Less Not Exceeding 150 volts to ground with GFCI Protection and Maximum Overcurrent Protection of 20 Amperes</u>	<u>Circuits for Control of Irrigation and Landscape Lighting Limited to Not More Than 30 Volts and Installed with Type UF or in Other Identified Cable or Raceway.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>
All locations not specified below	600	24	150	6	450	18	300	12	150 ^{1,2}	6 ^{1,2}
In trench below 50 mm (2 in.) thick concrete or equivalent	450	18	150	6	300	12	150	6	150	6
Under a building	0	0	0	0	0	0	0	0	0	0
		(in raceway or Type MC or Type MI cable identified for direct burial)	-	-	-	-				(in raceway or Type MC or Type MI cable identified for direct burial)
Under minimum of 102 mm (4 in.) thick concrete exterior slab with no vehicular traffic and the slab	450	18	100	4	100	4	150	6	150	6
							(direct burial)		(direct burial)	

extending not less than 152 mm (6 in.) beyond the underground installation						100 4 (in raceway)	100 4 (in raceway)
Under streets, highways, roads, alleys, driveways, and parking lots	600 24	600 24	600 24	600 24	600 24	600 24	600 24
One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes	450 18	450 18	450 18	450 18	300 12	450 18	450 18
In or under airport runways, including adjacent areas where trespassing is prohibited	450 18	450 18	450 18	450 18	450 18	450 18	450 18

¹A lesser depth shall be permitted where specified in the installation instructions of a listed low-voltage lighting system.

²A depth of 150 mm (6 in.) shall be permitted for pool, spa, and fountain lighting, installed in a nonmetallic raceway, limited to not more than 30 volts where part of a listed low-voltage lighting system.

Notes:

1. Cover shall be defined as the shortest distance in mm (in.) measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.
2. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 50 mm (2 in.) thick.
3. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.
4. Where one of the wiring method types listed in Columns 1 through 3 is used for one of the circuit types in Columns 4 and 5, the shallowest depth of burial shall be permitted.
5. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in a metal raceway, or a nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 50 mm (2 in.) of concrete extending down to rock.
6. Directly buried electrical metallic tubing (EMT) shall comply with 358.10.

Statement of Problem and Substantiation for Public Input

The danger of electrical circuits underground is not related to the line-to-line voltage, but the line-to-ground voltage. As the text currently reads, a 20A 240V line-to-line GFCI-protected circuit requires 24" of cover, but a 20A 120V line-to-neutral GFCI-protected circuit only requires 12" of cover. There is no reason 'electrically' to require 100% more cover on a 120/240V circuit as compared to a 120V.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

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Submittal Date: Wed Dec 31 15:07:28 EST 2025

Committee: NEC-P03



Public Input No. 578-NFPA 70-2026 [Section No. 300.7(A)]

(A) Minimum Cover Requirements.

Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum cover requirements of Table 300.7(A).

Table 300.7(A) Minimum Cover Requirements, 0 to 1000 Volts ac, 1500 Volts dc, Nominal, Burial in Millimeters (Inches)

<u>Location of Wiring Method or Circuit</u>	<u>Type of Wiring Method or Circuit</u>									
	<u>Column 1</u>		<u>Column 2</u>		<u>Column 3</u>		<u>Column 4</u>		<u>Column 5</u>	
	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>
All locations not specified below	600	24	150	6	450	18	300	12	150 ^{1,2}	6 ^{1,2}
In trench below 50 mm (2 in.) thick concrete or equivalent	450	18	150	6	300	12	150	6	150	6
Under a building	0	0	0	0	0	0	0	0	0	0
			(in raceway or Type MC or Type MI cable identified for direct burial)	-	-	-	-			(in raceway or Type MC or Type MI cable identified for direct burial)
Under minimum of 102 mm (4 in.) thick concrete exterior slab with no vehicular traffic and the slab	450	18	100	4	100	4	150	6	150	6
							(direct burial)			(direct burial)

extending not less than 152 mm (6 in.) beyond the underground installation						100 4 (in raceway)	100 4 (in raceway)
Under streets, highways, roads, alleys, driveways, and parking lots	600 24	600 24	600 24	600 24	600 24	600 24	600 24
One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes	450 18	450 18	450 18	450 18	300 12	450 18	450 18
In or under airport runways, including adjacent areas where trespassing is prohibited	450 18	450 18	450 18	450 18	450 18	450 18	450 18

¹A lesser depth shall be permitted where specified in the installation instructions of a listed low-voltage lighting system.

²A depth of 150 mm (6 in.) shall be permitted for pool, spa, and fountain lighting, installed in a nonmetallic raceway, limited to not more than 30 volts where part of a listed low-voltage lighting system.

Notes:

1. Cover shall be defined as the shortest distance in mm (in.) measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.
2. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 50 mm (2 in.) thick.
3. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.
4. Where one of the wiring method types listed in Columns 1 through 3 is used for one of the circuit types in Columns 4 and 5, the shallowest depth of burial shall be permitted.
5. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in a metal raceway, or a nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 50 mm (2 in.) of concrete extending down to rock.
6. Directly buried electrical metallic tubing (EMT) shall comply with 358.10.

Statement of Problem and Substantiation for Public Input

The wording in Column 4 is "resi branch circuits rated 120 volts or less." My assumption is this 120V is the same as for workspace clearance (nominal voltage to ground) but it is not possible to know from the current language whether this is a line to ground or line to line voltage measurement.

Submitter Information Verification

Submitter Full Name: Rebekah Hren

Organization: IPPNC LLC

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Submittal Date: Mon Jan 12 11:15:29 EST 2026

Committee: NEC-P03



Public Input No. 2045-NFPA 70-2026 [New Section after 300.7(D)(1)]

TITLE OF NEW CONTENT

Type your content here ...Slip PVC conduits or Riser PVC conduits emerging from the ground on raceways entering cabinets, panel boards or junction boxes shall be installed for movement.

Where feeders are installed on Dwelling units on or detached from the house, (like a power utility pole or pedestal) then the power company is responsible for their conduits and or slip sleeves before the dwelling customer's meter cabinet. If power provider will not do this work and it requires a permit, for the electrical licensed contractor, and nothing is changing on the service and no upgrades to the power than a permit shall not be needed to make safe again.

No, homeowner or business owner is allowed to do this work, with or without inspections in the city, county or states in the USA. This work is for trained and qualified electricians only.

Statement of Problem and Substantiation for Public Input

To many power companies are not wanting to address their side of the meter, especially then wanting an inspection for a repair. I have heard of inspectors and power providers coaching HO and owners "in the how to do", for this work, this should not be allowed.

Submitter Information Verification

Submitter Full Name: Joshua Peterson

Organization: PETERSON ELECTRIC LLC

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Submittal Date: Sat Mar 28 18:18:31 EDT 2026

Committee: NEC-P03



Public Input No. 2484-NFPA 70-2026 [Section No. 300.7(D)(1)]

(1) Emerging from Grade.

Direct-buried conductors and cables emerging from grade and specified in Columns 1 and 4 of Table 300.7(A) shall be protected by enclosures or raceways extending from the minimum cover distance below grade required by 300.7(A) to a point at least 2.5 m (8 ft) above finished grade. ~~In no case shall the protection~~ The protection shall not be required to exceed 450 mm (18 in.) below finished grade.

Statement of Problem and Substantiation for Public Input

The use of the phrase "in no case shall" is revised to comply with the NEC Style Manual for mandatory language as specified in 3.1.1.

Submitter Information Verification

Submitter Full Name: David Williams

Organization: Delta Charter Township

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Submittal Date: Fri Apr 03 11:49:12 EDT 2026

Committee: NEC-P03



Public Input No. 2044-NFPA 70-2026 [Section No. 300.7(D)(3)]

(3) Service Conductors and Raceways.

There shall be NO Direct buried service conductors and raceways shall be required for all service feeders and sub feeders, containing service conductors that are not encased in concrete and that are buried 450 mm (18 in.) or more below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (~~12 in~~ 6 in .) above the underground installation.

Statement of Problem and Substantiation for Public Input

To many services and sub feeders are damaged over time with ground movements and trenching. There are a lot of jobs with debris that are pushed in the trench with rocks and other trade materials and if the conductors are not protected with a listed underground raceway then damage occurs.

Submitter Information Verification

Submitter Full Name: Joshua Peterson

Organization: PETERSON ELECTRIC LLC

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Submittal Date: Sat Mar 28 18:09:20 EDT 2026

Committee: NEC-P03



Public Input No. 3364-NFPA 70-2026 [Section No. 300.7(D)(3)]

(3) Service Conductors and Raceways.

Direct buried service conductors and raceways containing service conductors that are not encased in concrete and that are buried 450 mm (18 in.) or more below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (12 in.) ~~above~~ directly above the underground installation. In some cases multiple ribbons might need to be utilized in the case of a wide trench with many runs in it.

Statement of Problem and Substantiation for Public Input

In a wide trench it may be misinterpreted as you only need one ribbon per trench. In some cases there could be many pipes and trenches that are over 10 feet wide. one ribbon will not get this job done.

Submitter Information Verification

Submitter Full Name: Jonathan Sunde

Organization: Trystar

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Submittal Date: Wed Apr 08 21:17:23 EDT 2026

Committee: NEC-P03



Public Input No. 910-NFPA 70-2026 [Section No. 300.7(D)(3)]

(3)– __ Service Conductors and Raceways Underground .

(A) Direct buried service conductors and raceways containing service conductors that are not encased in concrete and that are buried 450 mm (18 in.) or more below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (12 in.) above the underground installation.

(B) Service conductors installed in HDPE conduit that are not encased in concrete and installed by horizontal directional drilling shall have a warning ribbon installed 300 mm (12 in.) below grade for the entire length.

Statement of Problem and Substantiation for Public Input

When HDPE conduit is installed by directional boring, there is no trench. HDPE conduit with service conductors will still require a warning ribbon, but its installation is impractical without a trench and would require digging up the installation to measure the "300 mm 12" above" for placement. This will provide a practical option for placement of the warning ribbon.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 919-NFPA 70-2026 [Section No. 305.15(A) [Excluding any Sub-Sections]]</u>	Same change at the higher voltage range
<u>Public Input No. 919-NFPA 70-2026 [Section No. 305.15(A) [Excluding any Sub-Sections]]</u>	

Submitter Information Verification

Submitter Full Name: Paul Cormier

Organization: Cormier's Code Class

Affiliation: Cormier's Code Class

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Submission Date: Fri Feb 06 08:51:05 EST 2026

Committee: NEC-P03



Public Input No. 1342-NFPA 70-2026 [Section No. 300.7(I)]

(I) Conductors of the Same Circuit.

All conductors of the same circuit and, where used, the ~~ungrounded, grounded conductor,~~ and ~~all~~ equipment grounding conductors shall be installed in the same raceway or cable or shall be installed in close proximity in the same trench.

Exception No. 1: Conductors shall be permitted to be installed in parallel in raceways, multiconductor cables, or direct-buried single-conductor cables. Each raceway or multiconductor cable shall contain all conductors of the same circuit, including equipment grounding conductors. Each direct-buried single conductor cable shall be located in close proximity in the trench to the other single-conductor cables in the same parallel set of conductors in the circuit, including equipment grounding conductors.

Exception No. 2: Isolated ~~phase ungrounded, polarity,~~ grounded conductor, and equipment grounding and bonding conductor installations shall be permitted in nonmetallic raceways or cables with a nonmetallic covering or nonmagnetic sheath in close proximity where conductors are paralleled as permitted in 310.10(G), and where the conditions of 300.22(B) are met.

Statement of Problem and Substantiation for Public Input

My edits are editorial in nature. The proper term is 'ungrounded' conductor, not 'phase' conductor.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 07 19:40:24 EST 2026

Committee: NEC-P03



Public Input No. 1344-NFPA 70-2026 [Section No. 300.7(I)]

(I) Conductors of the Same Circuit.

All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors shall be installed in the same raceway or cable or shall be installed in close proximity in the same trench.

Exception No. 1: Conductors shall be permitted to be installed in parallel in raceways, multiconductor cables, or direct-buried single conductor cables. Each raceway or multiconductor cable shall contain all conductors of the same circuit, including equipment grounding conductors. Each direct-buried single conductor cable shall be located in close proximity in the trench to the other single conductor cables in the same parallel set of conductors in the circuit, including equipment grounding conductors.

Exception No. 2: Isolated phase, polarity, grounded conductor, and equipment grounding and bonding conductor installations shall be permitted in nonmetallic raceways or cables with a nonmetallic covering or nonmagnetic sheath in close proximity where conductors are paralleled as permitted in 310.10(G), and where the conditions of 300.5(B)(1) Exception and 300.22(B) are met.

Statement of Problem and Substantiation for Public Input

Editorial and to ensure that the text correlates with 300.5(B)(1) Exception.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 07 19:47:17 EST 2026

Committee: NEC-P03



Public Input No. 3090-NFPA 70-2026 [Section No. 300.7(I)]

(I) Conductors of the Same Circuit.

All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors shall be installed in the same raceway or cable or shall be installed in close proximity in the same trench.

Exception No. 1 Exception: Conductors shall be permitted to be installed in parallel in raceways, multiconductor cables, or direct-buried single conductor cables. Each raceway or multiconductor cable shall contain all conductors of the same circuit, including equipment grounding conductors. Each direct-buried single conductor cable shall be located in close proximity in the trench to the other single conductor cables in the same parallel set of conductors in the circuit, including equipment grounding conductors.

Exception No. 2: Isolated phase, polarity, grounded conductor, and equipment grounding and bonding conductor installations shall be permitted in nonmetallic raceways or cables with a nonmetallic covering or nonmagnetic sheath in close proximity where conductors are paralleled as permitted in 310.10(G), and where the conditions of 300.22(B) are met.

Statement of Problem and Substantiation for Public Input

This is already allowed by 300.5(C)(3). This exception does not allow anything that is not already allowed elsewhere.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

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Submittal Date: Tue Apr 07 19:34:05 EDT 2026

Committee: NEC-P03



Public Input No. 784-NFPA 70-2026 [Section No. 300.7(K)]

~~(K) Directional Boring:~~

~~Cables or raceways installed using directional boring equipment shall be approved for the purpose.~~

Statement of Problem and Substantiation for Public Input

All cables and raceways need to be approved. See 110.2. This repeated general requirement is not needed and is a violation of the Style Manual.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

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Submittal Date: Mon Jan 26 17:24:32 EST 2026

Committee: NEC-P03



Public Input No. 264-NFPA 70-2025 [Section No. 300.11]

300.11 Raceways in Wet Locations- ~~Above-Grade~~ .

(A) General.

~~Where~~ If raceways are installed in wet locations- ~~above-grade~~ , the interior of these raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceways in wet locations ~~above-grade~~ shall comply with 310.10(C).

(B) Drainage.

Raceways installed in wet locations ~~above-grade~~ shall be arranged to drain.

Statement of Problem and Substantiation for Public Input

The language regarding "above grade" was initially intended to differentiate this requirement from the one in 300.7(B). As this section has evolved, that distinction has outlived its usefulness. For example, does a raceway in indoor wet location need to comply with this rule if it is in a basement? A basement is not "above grade," but the concern is the same.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Ryan Jackson Electrical Training

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City:

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Submittal Date: Mon Nov 24 13:38:24 EST 2025

Committee: NEC-P03



Public Input No. 285-NFPA 70-2025 [Section No. 300.11(A)]

(A) General.

Where raceways are installed in wet locations above grade, the interior of these raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceways in wet locations above grade shall comply with 310.10(C).

Exception: The interior of these raceways shall not be considered a wet location if:

(1) The section of raceway routed in a wet location above grade does not exceed 10' in length.

(2) Any fittings or conduit bodies are water tight and listed for use in wet locations.

(3) All termination points of the raceway are only open in a dry location, equipment listed for outdoor use, or equipment listed for use in a wet location.

-

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
20250819_131025.jpg	Example of conduit interior to be considered a dry location.	

Statement of Problem and Substantiation for Public Input

This application is seen where running an new circuit to an exterior wall for a boat lift, post light, or other exterior use, where romex would be run from an interior panel through the attic and when it exits the building it would be sleeved in conduit from the soffit to a weatherproof enclosure. The run is typically always vertical and never more that 10' Anything leaving that enclosure and going into the earth would be done with cable having a wet location rating. This method of wiring is very commonplace and our fifty years we have not experienced failures due to moisture in the vertical run of conduit from the soffit to the enclosure.

Submitter Information Verification

Submitter Full Name: Robert Greco

Organization: Acra Electric Inc

Street Address:

City:

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Zip:

Submission Date: Wed Nov 26 15:27:14 EST 2025

Committee: NEC-P03





Public Input No. 474-NFPA 70-2025 [Section No. 300.12]

300.12 Electrical Continuity of Metal Raceways, Cable Armor, and Enclosures.

Metal raceways, cable armor, and other metal enclosures for conductors shall be metallically joined together into a continuous electrical conductor and shall be connected to all cabinets, boxes, conduit bodies, fittings, ~~and cabinets~~ wireways, or other enclosures to provide an effective ground fault current path.

Exception No. 1: Short sections of raceways used to provide support or protection of cable assemblies from physical damage shall not be required to be made electrically continuous.

Exception No. 2: Equipment enclosures to be isolated, as permitted by 250.96(B), shall not be required to be metallically joined to the metal raceway.

Statement of Problem and Substantiation for Public Input

This proposal is not intended to introduce a technical change. The edits align the language of this section with the terminology used for mechanical continuity in Section 300.14.

Maintaining consistent terminology between related sections improves clarity and reduces the potential for misinterpretation. Using the same language for similar requirements helps ensure that Code users, installers, and inspectors apply the provisions consistently.

Aligning this section with the wording used in Section 300.14 promotes uniformity within the Code, enhances usability, and supports consistent enforcement without altering the underlying technical requirements.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

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City:

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Submission Date: Wed Dec 31 15:15:26 EST 2025

Committee: NEC-P03



Public Input No. 1134-NFPA 70-2026 [Section No. 300.13(C)]

(C) Raceways Used as Means of Securement or Support.

Raceways shall be used as a means of securement or support ~~for or~~ other raceways, cables, or nonelectrical equipment only under any of the following conditions:

- (1) If the raceway or means of ~~support is~~ securement or support is identified as a means of ~~support~~ securing or supporting
- (2) If the raceway contains power supply conductors for electrically controlled equipment and is used to secure or support Class 2 or Class 3 circuit conductors or cables that are solely for the purpose of connection to the equipment control circuits
- (3) If the raceway is used to support boxes or conduit bodies in accordance with 314.23 or to support luminaires in accordance with 410.36(E)
- (4) If the raceway is used to secure or support an equipment bonding jumper that is associated with the circuit conductors within the raceway

Statement of Problem and Substantiation for Public Input

Some interpretations of the current language in Section 300.13(C) suggest that securing a cable to another cable is permitted, based on the rule addressing only “supporting” and not explicitly addressing “securement.” This interpretation creates a potential loophole that can lead to improper installation practices.

Securing a cable to another cable does not provide a reliable or code-compliant means of support and can result in mechanical stress, damage to conductors, or compromised wiring methods over time. The intent of the rule is to ensure that wiring methods are properly supported and secured in a manner that maintains their integrity.

Adding the term “securement” to Section 300.13(C) clarifies that both supporting and securing cables to other cables are not permitted. This revision removes ambiguity, aligns the language with the intended installation requirements, and prevents misinterpretation in the field.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submission Date: Sun Feb 22 17:41:50 EST 2026

Committee: NEC-P03



Public Input No. 1135-NFPA 70-2026 [Section No. 300.13(D)]

(D) Cables and Conductors Not Used as Means of Securement or Support.

Cable and conductor wiring methods shall not be used as a means of securement or support for other cables, conductors, raceways, or nonelectrical equipment.

Statement of Problem and Substantiation for Public Input

Some interpretations of the current language in Section 300.13(D) suggest that securing a cable to another cable is permitted, based on the rule addressing only “supporting” and not explicitly addressing “securement.” This interpretation creates a potential loophole that can lead to improper installation practices.

Securing a cable to another cable does not provide a reliable or code-compliant means of support and can result in mechanical stress, damage to conductors, or compromised wiring methods over time. The intent of the rule is to ensure that wiring methods are properly supported and secured in a manner that maintains their integrity.

Adding the term “securement” to Section 300.13(D) clarifies that both supporting and securing cables to other cables are not permitted. This revision removes ambiguity, aligns the language with the intended installation requirements, and prevents misinterpretation in the field.

This proposal improves clarity, eliminates an unintended loophole, and promotes safe and consistent installation practices in accordance with the NFPA 70.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submittal Date: Sun Feb 22 17:47:43 EST 2026

Committee: NEC-P03



Public Input No. 2900-NFPA 70-2026 [Section No. 300.13(E)(1)]

(1) Cable Ties.

Cable ties used as a means for securement and support for cable, flexible conduit, and flexible tubing shall be listed and identified for securement and support.

Informational Note: Type 2S and Type 21S cable ties are designed for securement and support.

Statement of Problem and Substantiation for Public Input

Most electricians do not know that Type 2S and 21S cable ties are designed for securement and support. Adding an informational note would help installers understand what type of cable ties are designed for such use.

Submitter Information Verification

Submitter Full Name: MARK RHOTON

Organization: NA

Affiliation: Master Electrician

Street Address:

City:

State:

Zip:

Submission Date: Mon Apr 06 19:59:08 EDT 2026

Committee: NEC-P03



Public Input No. 341-NFPA 70-2025 [Section No. 300.15(B)]

(B) Device Removal.

(1) Multiwire Branch Circuit. In multiwire branch circuits, the continuity of a grounded conductor shall not depend on device connections such as lampholders, receptacles, and so forth where the removal of such devices would interrupt the continuity.

(2) Higher Rating. Where a 15 amp receptacle is installed on a branch circuit being protected by a 20 amp OCPD in accordance with 210.21(B)(3), the continuity of a grounded or ungrounded conductor shall not depend on device connections where removal of such devices would interrupt the continuity.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
IMG-8043.jpg	Receptacle Failure	
UL_Stamp.JPG	UL Stamp on Damaged Receptacle	

Statement of Problem and Substantiation for Public Input

When a 15 amp device is installed on a 20 amp branch circuit and continuity of the circuit conductors is achieved through the device, the device is subject to being exposed to downstream currents above its rating. This requirement would assure that a receptacle is subjected only to the loads it serves and no current from other loads being served by the circuit. It is understood that duplex receptacles are required to meet the requirements in UL 498, and a 15-amp receptacle is evaluated in accordance with its electrical rating, which anticipates the installation on a 20-amp branch circuit and the related downstream loads. However, these types of failures are not uncommon, even among listed devices. From a pragmatic perspective, often devices are installed without adhering to the manufacturer's instruction by disregarding suggested torque values. In addition, the reality is we have no control over what home owners or end users plug into receptacles. Wiring the receptacles in parallel removes a point of failure.

Submitter Information Verification

Submitter Full Name: Steven Gibson

Organization:

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 08 09:23:37 EST 2025

Committee: NEC-P03



33
100

100
100





Public Input No. 770-NFPA 70-2026 [Section No. 300.15(B)]

(B) Device Removal.

In multiwire branch circuits, the continuity of a ~~grounded~~ neutral conductor shall not depend on device connections such as lampholders, receptacles, and so forth where the removal of such devices would interrupt the continuity.

Statement of Problem and Substantiation for Public Input

The term 'grounded conductor' is not the proper defined term to be used in this rule. The circuit conductors of a multi-wire branch circuit have a neutral conductor, not a grounded B-phase conductor. The best term for the industry to use in this application and to be consistent with the many other rules in the NEC that use the term Neutral Conductor.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

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Submittal Date: Sun Jan 25 13:01:38 EST 2026

Committee: NEC-P03



Public Input No. 635-NFPA 70-2026 [Section No. 300.17(C)]

(C) Protection.

~~A box or conduit body shall not be required where~~ Where cables enter or exit from conduit or tubing that is used to provide cable support or protection against physical damage. ~~A fitting~~ a fitting shall be provided on the end(s) of the conduit or tubing to protect the cable from abrasion.

Statement of Problem and Substantiation for Public Input

My suggest text is just a little simpler and easier for the Code user. Thanks for the consideration.

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jan 18 21:14:02 EST 2026

Committee: NEC-P03



Public Input No. 603-NFPA 70-2026 [Section No. 300.17(J)]

(J) Luminaires.

A box or conduit body shall not be required where a ~~luminaire is~~ luminaire or a pole supporting a luminaire is used as a raceway as permitted in 410.64.

Statement of Problem and Substantiation for Public Input

410.30B) contains the following text "Metal or nonmetallic poles shall be permitted to be used to support luminaires and as a raceway to enclose supply conductors, provided the following conditions are met:" therefore we need to recognize this practice in this rule.

Submitter Information Verification

Submitter Full Name: Mike Holt

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City:

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Submittal Date: Sun Jan 18 16:32:21 EST 2026

Committee: NEC-P03



Public Input No. 3091-NFPA 70-2026 [Section No. 300.17 [Excluding any Sub-Sections]]

A box shall be installed at each outlet and switch point for concealed knob-and-tube wiring.

Fittings and connectors shall be used only with the specific wiring methods for which they ~~are designed and listed~~ are listed .

~~Where~~ If the wiring method is conduit, tubing, ~~Type AC or cable, Type MC cable, Type MI cable, nonmetallic sheathed cable, or other cables,~~ a box or conduit body shall be installed at each outlet point, switch point, conductor splice point, conductor junction point, conductor termination point, wiring method transition point, or conductor pull point, unless otherwise permitted in 300.17(A) through 300.17(L).

Statement of Problem and Substantiation for Public Input

These revisions should be viewed as editorial. There is no need to list multiple examples of cables and then indicate that the rule applies to all cables. "Where" is changed to "if" because "where" is a location and "if" is a condition. The jargon about "designed" is not needed as fittings are required to be listed.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Ryan Jackson Electrical Training

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City:

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Submittal Date: Tue Apr 07 19:52:34 EDT 2026

Committee: NEC-P03



Public Input No. 475-NFPA 70-2025 [Section No. 300.17 [Excluding any Sub-Sections]]

(1) Knob-and-Tube Wiring. A box shall be installed at each outlet and switch point for concealed knob-and-tube wiring.

(2) Fitting and Connectors. Fittings and connectors shall be used only with the specific wiring methods for which they are designed and listed.

(3) Box or Conduit Body. Where the wiring method is conduit, tubing, Type AC cable, Type MC cable, Type MI cable, nonmetallic-sheathed cable, or other cables, a box or conduit body shall be installed at each outlet point, switch point, conductor splice point, conductor junction point, conductor termination point, wiring method transition point, or conductor pull point, unless otherwise permitted in 300.17(A) through 300.17(L).

Statement of Problem and Substantiation for Public Input

It's very difficult for the Code user to understand and apply the NEC at times simply because of how the text is formatted. Placing items with a title list will help the user become more confident in the NEC application. In accordance with NEC style manual 3.5.1.2 multiple requirements within a single subdivision shall be avoided. Additional subdivisions or lists shall be used to express independent requirements

Submitter Information Verification

Submitter Full Name: Mike Holt

Organization: Mike Holt Enterprises Inc

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State:

Zip:

Submission Date: Wed Dec 31 15:22:42 EST 2025

Committee: NEC-P03



Public Input No. 1824-NFPA 70-2026 [Section No. 300.19(A)]

(A) Raceway Fill.

The number and size of conductors and cables in a complete raceway shall not exceed the allowable percentage fill specified in Chapter 9 Table 1, along with the associated notes .

Statement of Problem and Substantiation for Public Input

This may already be understood. The intention of this PI is to allow for the 60% fill that is described in Note 4 to the tables. The current text of 300.19 simply points to the table itself.

Submitter Information Verification

Submitter Full Name: Eric Stromberg

Organization: Los Alamos National Laboratory

Affiliation: Self

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Submittal Date: Sun Mar 22 14:37:27 EDT 2026

Committee: NEC-P03



Public Input No. 797-NFPA 70-2026 [New Section after 300.20(B)]

300.20C Nipples, Securing and Supporting

Nipples shall be securely fastened in place in accordance with 300.20C1 or 300.20C2, as applicable.

1. Nipples connected between two enclosures shall not require additional securing or support.

2. A nipple installed in accordance to 300.17C, with one end of a nipple connected to a box, luminaire, or enclosure, requires at least one point of securement or support where the nipple has a length greater than 100mm (4") protruding from the box, luminaire, or enclosure to which it is connected.

Statement of Problem and Substantiation for Public Input

Whether the connections to the enclosure(s) is a threaded hub or not does not factor into this proposal. The added length of fittings, bushings, and the like installed on the free end of a nipple do not factor into this proposal. Tubing, raceways, and conduits are to be considered interchangeable words. The .30s of the raceway articles fall short of addressing the securing and supporting of nipples. The .30s do not state either way on this. One could 'read between the lines' to determine if they do or do not require securing/supporting and in many cases, securing/supporting is impracticable. It should be clear in NEC text one way or the other.

Regarding the first sentence of this public input, it is often the practice in the field to not support nipples that connect two enclosures together. This new public input states that nipples installed in this manner shall not require added securing or support. According to the newly proposed Article 100 definition, a nipple is any tubing or raceway or conduit length 600mm (24") or less in length.

The second sentence of this public input is for a nipple installed to protect cables that exit the nipple free of an enclosure (300.17C). The proposed 4" limit, without securing or supporting, acknowledges a greater nipple length without securement or support adds leverage as the length increases. It would also matter if the nipple (being connected at one end to an enclosure) exited the enclosure vertically or horizontally.

Perhaps the CMP sees fit to other than a 4" maximum length before requiring securement or support for the 300.17C condition. If this new 300.20C becomes CMP approved, the maximum length nipple measurement allowed before mandating a point of securement or support would have to be written into NEC text. Without it, even a chase nipple would require being secured or supported.

The new 300.20C pertains to all raceway types of nipples making it belong in Article 300. Also, a requirement will be proposed at each raceway article that is affected by the addition of 300.20C which routes Code users to 300.20C for the installation of nipples.

Besides this Public Input, please see the very related Public Input in Article 100 for a new definition 'nipple' and the following raceway articles:

342.30 IMC No change needed. It already says that it shall be installed in accordance with 300.20.

344.30 RMC No change needed. It already says that it shall be installed in accordance with 300.20.

348.30 FMC shall be "installed in accordance with 300.20(C) as applicable, and shall be" securely fastened in place and supported in accordance with 348.30(A) and 348.30(B).

350.30 LFMC shall be "installed in accordance with 300.20C as applicable, and shall be" securely fastened in place and supported in accordance with 350.30(A) and 350.30(B).

352.30 PVC No change needed. It already says that it shall be installed in accordance with 300.20.

354 NUCC Nipple support won't be applicable to Nonmetallic Underground Conduit with Conductors and there is no .30 at this article.

355.30 RTRC No change needed. It already says that it shall be installed in accordance with 300.20.

356.30 LFNC shall be “installed in accordance with 300.20(C) as applicable, and shall be” securely fastened and supported in accordance with one of the following:

358.30 EMT No change needed. It already says that it shall be installed in accordance with 300.20.

360 FMT Nipple support won't be applicable to Flexible Metallic Tubing and there is no .30 at this article.

362.30 ENT No change needed. It already says that it shall be installed in accordance with 300.20.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 795-NFPA 70-2026 [New Definition after Definition: Neutral Point.]</u>	A definition for 'nipple' is provided.
<u>Public Input No. 893-NFPA 70-2026 [Section No. 348.30 [Excluding any Sub-Sections]]</u>	This provides context to nipples installation.
<u>Public Input No. 894-NFPA 70-2026 [Section No. 350.30 [Excluding any Sub-Sections]]</u>	This provides context to nipples installation.
<u>Public Input No. 895-NFPA 70-2026 [Section No. 356.30]</u>	This provides context to nipples installation.
<u>Public Input No. 795-NFPA 70-2026 [New Definition after Definition: Neutral Point.]</u>	
<u>Public Input No. 893-NFPA 70-2026 [Section No. 348.30 [Excluding any Sub-Sections]]</u>	
<u>Public Input No. 894-NFPA 70-2026 [Section No. 350.30 [Excluding any Sub-Sections]]</u>	

Submitter Information Verification

Submitter Full Name: Norm Feck

Organization: SpaceX

Affiliation: self

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Submission Date: Tue Jan 27 15:36:49 EST 2026

Committee: NEC-P03



Public Input No. 2485-NFPA 70-2026 [Section No. 300.21(B)]

(B) Fire-Resistive Cables and Conductors.

Support methods and spacing intervals for fire-resistive cables and conductors shall comply with any restrictions provided in the listing of the electrical circuit protective system or fire-resistive cable system used and ~~in no case~~ shall not exceed the values in Table 300.21(A).

Statement of Problem and Substantiation for Public Input

The use of the phrase "in no case shall" is revised to comply with the NEC Style Manual for mandatory language as specified in 3.1.1.

Submitter Information Verification

Submitter Full Name: David Williams

Organization: Delta Charter Township

Street Address:

City:

State:

Zip:

Submittal Date: Fri Apr 03 11:50:32 EDT 2026

Committee: NEC-P03



Public Input No. 1296-NFPA 70-2026 [Section No. 300.22(B)]

(B) Individual Conductors.

Where ~~a single conductor carrying~~ **individual alternating** ~~current passes through~~ **current conductors, including conductors connected in parallel (electrically joined at both ends)**, ~~pass through~~ metal with magnetic properties, the inductive effect shall be minimized by either cutting slots in the metal between the individual holes through which the individual conductors pass or passing all the conductors in the circuit through an insulating wall sufficiently large for all of the conductors of the circuit.

Exception: In the case of circuits supplying vacuum or electric-discharge lighting systems or signs or X-ray apparatus, the currents carried by the conductors are so small that the inductive heating effect can be ignored where these conductors are placed in metal enclosures or pass through metal.

Informational Note: Because aluminum is not a magnetic metal, there will be no heating due to hysteresis; however, induced currents will be present. They will not be of sufficient magnitude to require grouping of conductors or special treatment in passing conductors through aluminum wall sections.

Statement of Problem and Substantiation for Public Input

The current text of NEC 300.22(B) begins with the phrase “a single conductor” but then refers to individual conductors and all conductors of the circuit. This can be read too narrowly and does not clearly address installations using single conductors in parallel, even though those conductors can also pass through ferrous metal in a manner that creates inductive heating concerns. Revising the text to include conductors connected in parallel, using terminology consistent with NEC 2026 310.10(G)(1), would clarify that the requirement applies to both single-conductor and parallel-conductor installations where associated alternating-current service, feeder, or branch-circuit conductors pass through metal with magnetic properties. This proposal is a clarification only and does not change the underlying requirement to minimize inductive heating. This proposal is editorial in nature and does not change the technical requirement.

Submitter Information Verification

Submitter Full Name: Thomas Blevins

Organization:

Street Address:

City:

State:

Zip:

Submission Date: Fri Mar 06 13:35:15 EST 2026

Committee: NEC-P03



Public Input No. 265-NFPA 70-2025 [Section No. 300.25 [Excluding any Sub-Sections]]

~~The requirements of this section shall apply to the installation and uses of electrical wiring and equipment in ducts used for dust, loose stock, or vapor removal; ducts specifically fabricated for environmental air; and other spaces used for environmental air (plenums).~~

~~Informational Note: See Article 424 Part VI for requirements on duct heaters.~~

Statement of Problem and Substantiation for Public Input

This is all superflous.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Ryan Jackson Electrical Training

Street Address:

City:

State:

Zip:

Submittal Date: Mon Nov 24 14:38:51 EST 2025

Committee: NEC-P03



Public Input No. 3105-NFPA 70-2026 [Section No. 300.27]

300.27 – ~~Exit Enclosures (Stair Towers)~~ 27 – Interior Exit Stairways .

Where an interior ~~exit enclosure~~ stairway is required to have a fire resistance rating, only electrical wiring methods serving equipment permitted by the authority having jurisdiction in the interior ~~exit enclosure~~ stairway shall be installed within the interior ~~exit enclosure~~ stairway .

Exception: Where egress lighting is required on outside exterior doorways from the interior ~~exit enclosure~~ stairway , luminaires shall be permitted to be supplied from the inside of the interior ~~exit enclosure~~ stairway .

Informational Note: See NFPA 101, *Life Safety Code*, 7.1.3.2.1(10)(b) for more information.

Statement of Problem and Substantiation for Public Input

The means of egress component described in this section is called an "interior exit stairway" in the IBC. The IBC is adopted in all 50 states, and we should defer to their terminology when discussing building code-related matters.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Ryan Jackson Electrical Training

Street Address:

City:

State:

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Submittal Date: Tue Apr 07 20:17:17 EDT 2026

Committee: NEC-P03



Public Input No. 1008-NFPA 70-2026 [New Section after 335.120]

335.126 Hazardous (Classified) Locations.

Where required to be marked ITC-HL, the cable shall be listed and shall have a gas/vapor tight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
PC_47_CMP_3.pdf	70_PC47	

Statement of Problem and Substantiation for Public Input

NOTE: This Public Input appeared as “Reject but Hold” in Public Comment No. 47 of the (A2025) Second Draft Report for NFPA 70 and per the Regs. at 4.4.8.3.1 and needs to be reconsidered by the Code-Making Panel for the next edition of the document.

The wiring method ITC-HL has not been included in the wiring method Article 335, despite being included in hazardous location sections 501.10(A)(1)(5), 502.10(A)(1)(5), 505.15(B)(1)(3), and 506.15(A)(4), as well as within the product standard UL 2225 Cables and Cable-Fittings for use in Hazardous (Classified) Locations. The other cables within this standard, MC-HL and TC-ER-HL, both have a Hazardous (Classified) Location section within their respective articles, 330.126 (per FR 8022) for MC-HL and 336.126 (per FR8114) for TC-ER-HL. While this public comment is addressing a section that was not modified during the Public Input stage, and therefore may be deemed new material, there is justification citing the Style Manual calling for parallel construction between articles (2023 NEC Style Manual, Clause 3.5.5) to include this addition in the public comments stage.

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Submission Date: Wed Feb 11 12:35:35 EST 2026

Committee: NEC-P03



Public Comment No. 47-NFPA 70-2024 [New Section after 335.120]

335.126 Hazardous (Classified) Locations.

Where required to be marked ITC-HL, the cable shall be listed and shall have a gas/vapor tight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material.

Statement of Problem and Substantiation for Public Comment

The wiring method ITC-HL has not been included in the wiring method Article 335, despite being included in hazardous location sections 501.10(A)(1)(5), 502.10(A)(1)(5), 505.15(B)(1)(3), and 506.15(A)(4), as well as within the product standard UL 2225 Cables and Cable-Fittings for use in Hazardous (Classified) Locations. The other cables within this standard, MC-HL and TC-ER-HL, both have a Hazardous (Classified) Location section within their respective articles, 330.126 (per FR 8022) for MC-HL and 336.126 (per FR8114) for TC-ER-HL. While this public comment is addressing a section that was not modified during the Public Input stage, and therefore may be deemed new material, there is justification citing the Style Manual calling for parallel construction between articles (2023 NEC Style Manual, Clause 3.5.5) to include this addition in the public comments stage.

Related Item

• FR-8022-NFPA 70-2024 Section renumbering for MC-HL from 330.130 to 330.126

• FR-8114-NFPA 70-2024 Section renumbering for TC-ER-HL from 336.130 to 336.126

Submitter Information Verification

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Submittal Date: Fri Jul 12 07:46:52 EDT 2024

Committee: NEC-P03

Committee Statement

Committee Action: Rejected but held

Resolution: This public comment introduces new material that has not undergone public review in accordance with 4.4.4.2 of the Regulations Governing the Development of NFPA Standards.



Public Input No. 2362-NFPA 70-2026 [Section No. 590.2]

590.2 Listing of Temporary Portable Power Sources and Decorative Lighting.

The following shall be listed and labeled on the product:

(1) Decorative lighting used for holiday lighting and similar purposes, in accordance with 590.5(B), shall be listed and shall be labeled on the product.

(2) Portable power sources, other than EVs or ESVSEs.

Statement of Problem and Substantiation for Public Input

UL 2743, UL 9540, UL 2201, UL 2262, and the PGMA G300 Standard cover the listing requirements for portable power packs, portable ESS, portable generators, and portable fuel cells. The use of listed portable power sources enhances electrical safety for temporary installations. The various types of EVs that can be used as a portable power source are omitted as there is not an ANSI approved listing standard for vehicles.

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Submission Date: Thu Apr 02 11:11:14 EDT 2026

Committee: NEC-P03



Public Input No. 1520-NFPA 70-2026 [Section No. 590.6(C)]

(C) Receptacles.

~~All receptacles shall be of the grounding type. Unless installed in a continuous metal raceway that qualifies as an equipment grounding conductor in accordance with 250.118 or a continuous metal-covered cable that qualifies as an equipment grounding conductor in accordance with 250.118, all branch circuits shall include a separate equipment grounding conductor, and all receptacles shall be electrically connected to the equipment grounding conductor(s).~~

Receptacles on construction sites shall not be installed on any branch circuit that supplies temporary lighting.

Statement of Problem and Substantiation for Public Input

This is already required by 406.12(A). Repeating here is not needed and is a violation of the Style Manual.

Submitter Information Verification

Submitter Full Name: Ryan Jackson

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Submittal Date: Sat Mar 14 18:50:17 EDT 2026

Committee: NEC-P03



Public Input No. 1521-NFPA 70-2026 [Section No. 590.6(C)]

(C) Receptacles.

All receptacles shall be of the grounding type. Unless installed in a continuous metal raceway that qualifies as an equipment grounding conductor in accordance with 250.118 or a continuous metal-covered cable that qualifies as an equipment grounding conductor in accordance with 250.118, all branch circuits shall include a separate equipment grounding conductor, and all receptacles shall be electrically connected to the equipment grounding conductor(s). Receptacles on construction sites shall not be installed on any branch circuit that supplies temporary lighting.

Exception: Listed cord-and-plug-connected lighting assemblies shall be permitted to be supplied by a GFCI-type receptacle on a branch circuit that is not GFCI-protected.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
590.6_C_.jpg	Violation photo	

Statement of Problem and Substantiation for Public Input

The purpose of this requirement is to ensure that the opening of a GFCI does not result in the loss of lighting. As currently written, cord-and-plug-connected lighting is not permitted. This exception would allow the (commonly accepted and nearly universal) practice of installing cord-and-plug-connected light strings on a job site. The receptacle would still require GFCI protection to ensure personnel safety while still safeguarding against unnecessary loss of illumination from a fault from a different portion of the circuit.

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Submission Date: Sat Mar 14 18:52:38 EDT 2026

Committee: NEC-P03

590.6(C) Receptacles

© Ryan Jackson 2026

Violation!



On construction sites, lighting and receptacles are not allowed on the same branch circuit.



Public Input No. 1475-NFPA 70-2026 [Section No. 590.6(I)(3)]

(3) Vegetation Not Used for Support.

Vegetation shall not be used for support of overhead spans of branch circuits or feeders.

Exception: For emergencies or holiday lighting in accordance with 590.5(B), where the conductors or cables are arranged with strain relief devices, tension take-up devices, or other approved means to avoid damage from the movement of the live vegetation, trees shall be permitted to be used for support of overhead spans of branch-circuit conductors or cables.

Statement of Problem and Substantiation for Public Input

Using this method can be a quick, reliable and safe way to provide power or lighting during an emergency. In fact it almost makes more sense to allow trees to support branch circuit wiring for emergency purposes than it does for holiday lighting purposes. Holiday lighting displays can be planned out months in advance including establishing ways to avoid using trees. Emergencies on the other hand require immediate action.

Submitter Information Verification

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Submittal Date: Thu Mar 12 07:10:00 EDT 2026

Committee: NEC-P03



Public Input No. 1523-NFPA 70-2026 [Section No. 590.7]

590.7 Ground-Fault Protection for Personnel.

Ground-fault protection for

personnel for all temporary wiring installations shall be provided to comply with 590.7

~~(A)~~

and 590.7(B). This section shall apply only to temporary wiring installations used to supply temporary power to equipment used by personnel during construction, remodeling, maintenance, repair, or demolition of buildings, structures, equipment, or similar activities. This section shall apply to power derived from an electric utility company or from an on-site generated power source.

~~(A) Receptacle Outlets:~~

Temporary receptacle installations used to supply temporary power to equipment used

Receptacles.

Receptacles used by personnel during construction, remodeling, maintenance, repair, or demolition of buildings, structures, equipment, or similar activities shall comply with the requirements of 590.7(A)(1) through 590.7(A)(3), as applicable.

Exception: In industrial establishments only, where conditions of maintenance and supervision ensure that only qualified personnel are involved, an assured equipment grounding conductor program as specified in 590.7(B)(2) shall be permitted for only those receptacle outlets used to supply equipment that would create a greater hazard if power were interrupted or having a design that is not compatible with GFCI protection.

(1)

Receptacle Outlets

Receptacles Not Part of Permanent Wiring.

All 125-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets

receptacles that are not a part of the permanent wiring of the building or structure and that are in use by personnel shall have GFCI protection for personnel.

(2)

Receptacle Outlets

Receptacles Existing or Installed as Permanent Wiring.

Ground-fault circuit-interrupter protection for personnel shall be provided for all 125-volt, single-phase, 15-, 20-, and 30-ampere

receptacle outlets

receptacles installed or existing as part of the permanent wiring of the building or structure and used for temporary electric power.

Exception: A listed cord set or device incorporating listed GFCI protection for personnel and identified for portable use shall be permitted for compliance with this section.

(3) Receptacles on 15-kW or less Portable Generators.

GFCI Protection. All 125-volt and 125/250-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets

receptacles that are a part of a 15-kW or smaller portable generator shall have listed ground-fault circuit-interrupter protection for personnel.

Exception: A listed cord set or device incorporating listed GFCI protection for personnel and identified for portable use shall be permitted for compliance with this section where the portable generator was manufactured or remanufactured prior to January 1, 2015.

Damp or Wet Locations: All receptacles, including those that are part of a portable generator, used in a damp or wet location shall comply with 406.9

(

A) and 406.9(

B)

:

(B)

Other

Receptacle Outlets

Receptacles .

For temporary wiring installations, receptacles, other than those covered by 590.7(A)(1) through 590.7(A)(3), used

to supply temporary power to equipment used

by personnel during construction, remodeling, maintenance, repair, or demolition of buildings, structures, or equipment, or similar activities, shall have protection in accordance with 590.7(B)(1), or the assured equipment grounding conductor program in accordance with 590.7(B)(2).

(1) GFCI Protection.

Ground-fault circuit-interrupter protection for personnel.

(2) Assured Equipment Grounding Conductor Program.

A written assured equipment grounding conductor program continuously enforced at the site by one or more designated persons to ensure that equipment grounding conductors for all cord sets, receptacles that are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug are installed and maintained in accordance with the applicable requirements of 250.114, 250.138, 406.12(C), and 590.6(C).

(1) The following tests shall be performed on all cord sets, receptacles that are not part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be connected to an equipment grounding conductor:

(2) All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.

(3) Each receptacle and attachment plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.

(4) All required tests shall be performed as follows:

(5) Before first use on site

(6) When there is evidence of damage

(7) Before equipment is returned to service following any repairs

(8) At intervals not exceeding 3 months

(9) The tests required in 590.7(B)(2)(a) shall be recorded and made available to the authority having jurisdiction.

The assured equipment grounding conductor program shall be documented and made available to the authority having jurisdiction.

Informational Note: See OSHA 29 CFR 1910 and 1926 for requirements for assured equipment grounding conductor programs. See NFPA 70E -2024, *Standard for Electrical Safety in the Workplace*, for additional information.

Statement of Problem and Substantiation for Public Input

The opening statement is marked for deletion because it is not needed. Subsections (A) and (B) both indicate that these rules only apply to construction-related activities, so there is no need to have it here. There is also no need to indicate that this requirement applies to services and other power sources. The code is not for untrained persons, and this section specifically discusses portable generators.

The term "receptacle outlet" is misused throughout this section. The receptacle outlet is the box with the wire in it, not the device itself. The only way to GFCI protect a receptacle outlet is with an upstream device, such as a circuit breaker. Installing a GFCI-type receptacle at a receptacle outlet does not provide GFCI protection for the receptacle outlet, it provides protection for the receptacle and the cord-

and-plug-connected load.

Subsection (A) is revised by deleting the language about “temporary receptacle installations” because this section applies to both temporary receptacles and permanent receptacles. Although the use of temporary power is temporary, the receptacles may not be. Also, the phrase “used to supply temporary power to equipment” is superfluous. What else could the receptacle possibly be supplying, considering the definition of the word “equipment” in Article 100. This also occurs in subsection (B) and is marked for deletion.

Subsection (3)(b) is marked for deletion because 90.3 already requires this and the Style Manual prohibits repeating it here.

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Submittal Date: Sun Mar 15 17:19:39 EDT 2026

Committee: NEC-P03



Public Input No. 3617-NFPA 70-2026 [Section No. 590.7(B)(1)]

(1) – GFCI Protection:

Ground-fault circuit interrupter

Ground-Fault Circuit-Interrupter (GFCI) and Special-Purpose Ground-Fault Circuit-Interrupter (SPGFCI) Protection.

GFCI or SPGFCI protection for personnel.

Statement of Problem and Substantiation for Public Input

There are multiple electrical fatalities in the construction industry every year. Electrical shock and electrocution is consistently one of the major causes of these fatalities. In a construction environment, temporary cabling and equipment can become damaged, sometimes without the user being aware, creating a dangerous situation. The requirement for Class A GFCIs have been included in this section for this reason, to try to eliminate these electrocutions.

Class A GFCIs are applicable for circuits that are 150 volts to ground. For circuits with higher voltages, the assured equipment grounding conductor program has been utilized to provide a degree of safety.

However, now that new classes of GFCIs are available, this section should be updated to include the SPGFCIs, as these provide superior shock protection for workers on these higher voltage circuits. Through the use of the assured equipment grounding conductor program, the health of the system ground is verified prior to use. However, in a construction environment cabling or connections can become damaged while the equipment is being used. If a ground-fault occurs at that time, there is high risk of shock injury. SPGFCIs provide both monitoring of the system grounding conductor, as well as fibrillation protection.

UL 943C, Outline of Investigation for Special Purpose Ground-Fault Circuit-Interrupters, defines three classes of SPGFCI products: Class C, Class D, and Class E. These devices operate at 20 mA of fault current or less to prevent fibrillation, and require a ground monitor/interrupter function internal to the device to monitor equipment grounding conductor continuity.

- Class C is intended for circuits up to 300 volts ac to ground where reliable equipment grounding or double insulation is provided.

- Class D is intended for circuits over 300 volts to ground and with a specially sized equipment grounding conductor.

- Class E is intended for circuits over 300 volts to ground with conventional equipment grounding or double insulation, and rapid tripping.

The definitions for these SPGFCIs have already been added to Article 100 during the 2026 NEC cycle.

Submitter Information Verification

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Committee: NEC-P03