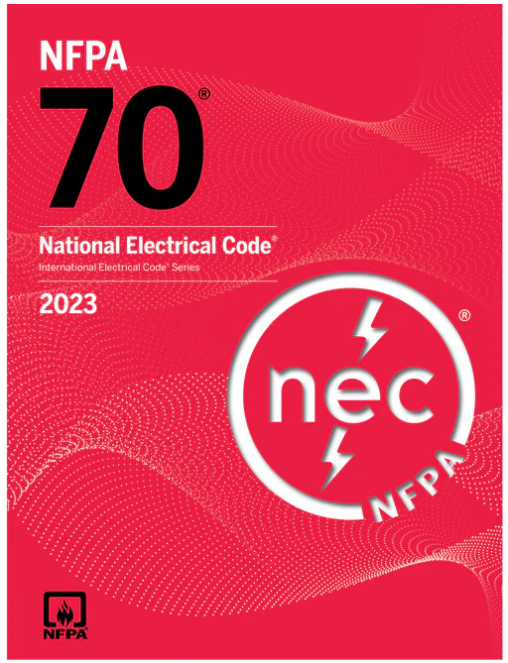
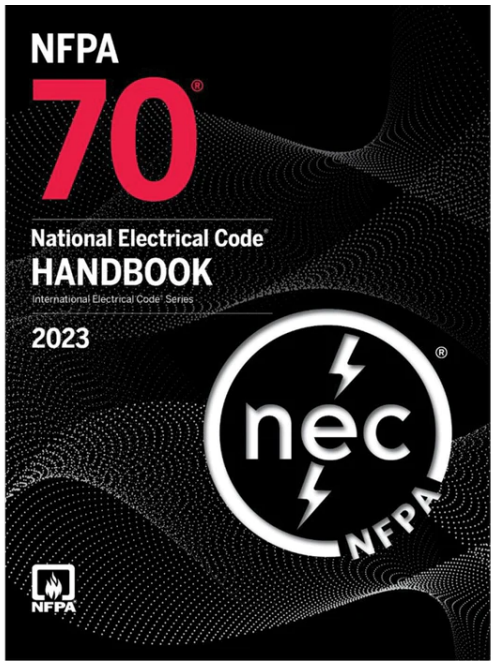
CHANGES TO NATIONAL ELECTRICAL CODE FOR 2023 EDITION





Presenter Michael Leitzel

TPC

CHANGES TO NATIONAL ELECTRICAL CODE FOR 2023 EDITION

4006 Public Inputs
1805 First Revisions
900 Second Revisions
1956 Public Comments

CODE WIDE CHANGES

ALL definitions are now located in Art. 100

No longer need to search specific articles to locate certain definitions. Provides one-stop location for any NEC terms.

An article number appearing after the defined term indicates the definition only applies to that article.

CHANGES TO NATIONAL ELECTRICAL CODE FOR 2023 EDITION

Chapter 1

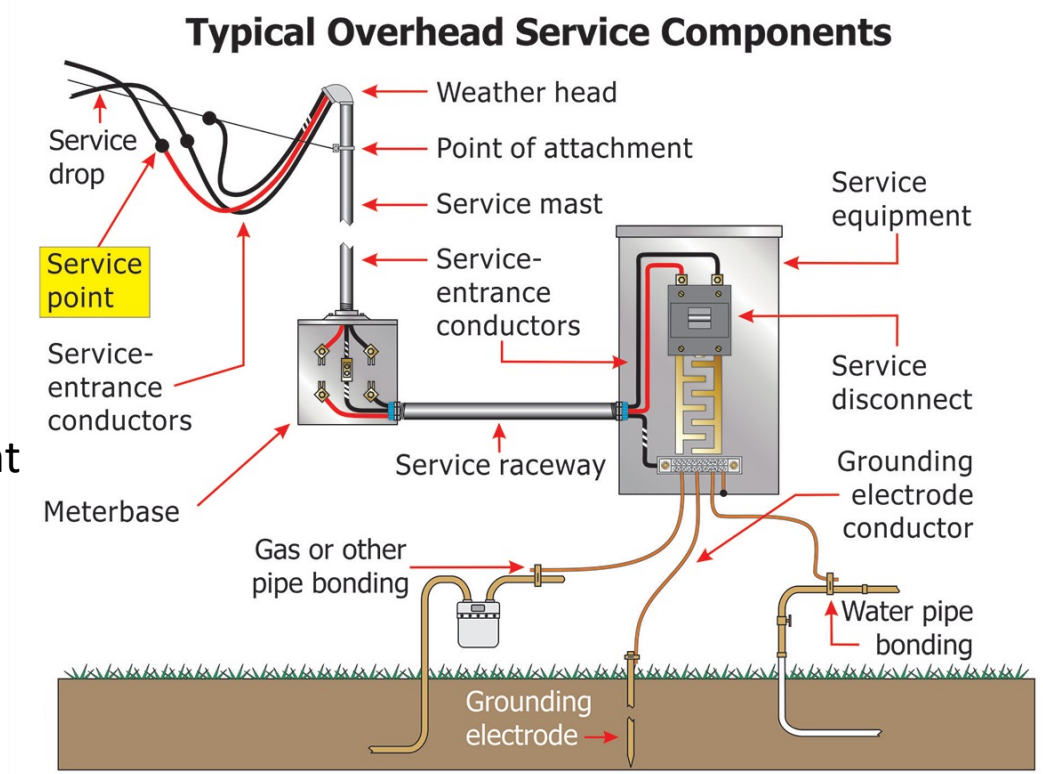
Articles 100 and 110

Article 100

An array of terms newly defined, including:

Class 4 circuit
Energy management system
Feeder assembly
Fibers/flyings combustible
Ground Fault
Impedance grounding conductor
Impedance grounding system
In sight from

Load management
Normal high-water level
PV DC Circuit
PV Source Circuit
PV String Circuit
Restricted Industrial Establishment
Short Circuit
Transformer



Article 100

<u>Accessible</u> – revised definition to clarify that wiring and electrical equipment made inaccessible by piping, ductwork, drains, raceways, or other mechanical systems is no longer considered accessible as applied to wiring methods.

Article 100

***<u>Likely to Become Energized</u>* Definition provided to ease distinction between equipment that CAN become energized and equipment that is LIKELY to do so.**

Phrase appeared 25 times in various locations but was always open to interpretation since it was never specifically defined.

Article 100

Counter (Countertop) New definition added as a result of confusion among installers and enforcement.

Key distinction between WORK SURFACE and COUNTER is quantity of spillage to which surface will be subjected.

Article 100

<u>Servicing</u> New definition due to confusion between what is considered reconditioning versus normal servicing, maintenance, and repairs of electrical equipment.

Many mentions throughout related to reconditioning of equipment. Concerns regarding listing requirements still being met.

Article 110

110.3(A) New list item #8 that addresses cybersecurity for network-connected life safety equipment.

This does not mandate the electrical professional conduct a cybersecurity evaluation but to remember and recognize that it is a hazard and should be considered.

Article 110

110.17 Servicing and Maintenance of Equipment

New section restricts this work to "qualified persons trained to perform the work".

Requires use of identified replacement parts that have been verified per applicable standards.

Article 110

110.17 Servicing and Maintenance of Equipment

Parts are to be provided by either:

original equipment manufacturer

designed by an engineer with applicable experience or

as approved by the AHJ

Article 110

110.22(A) General (Disconnection Means)

-helps determine when the identification of disconnecting means is required or when it is already evident.

An example would be the disconnect for a water heater installed so close to the unit as to make the relationship obvious.

Article 110

110.26(A)(6) Grade, Floor, or Working Platform

New list item to address floor conditions at electrical equipment locations emphasizing a need to be clear of objects(trip hazards) and level and flat as practical.

110.34(A) was also revised in same manner for equipment over 1000 volts.

CHAPTER 2

Article 210.8(A)(6) Dwelling Units-Kitchens

Ground-fault circuit interrupter (GFCI) protection has been expanded to include any cord-and-plug equipment in the kitchen, regardless of whether the outlet serves the countertop.

Electricians will need to be aware that GFCI protection is now required for ALL 125-volt through 250-volt receptacles within the kitchen and not just those serving countertop locations.

CHAPTER 2

Article 210.8(A) Ex. No. 4-GFCI Protection of Bathroom Receptacles

New exception added to help installer and enforcement understand GFCI requirements for factory-installed exhaust fan receptacles.

It's been determined that these receptacles do not require GFCI protection unless required by the installation instructions or the listing.

There is language that specifies that these are not readily accessible and that the receptacles be installed integral to the exhaust fan assembly.

CHAPTER 2

Article 210.8(B)(4) Other than Dwelling Units

New change adds Buffet Serving Areas to the list of locations requiring GFCI protection.

Article 210.8(B)(7) Other than Dwelling Units, Sinks

Location of the cord-and-plug connected fixed or stationary appliance, and not the receptacle, will determine if GFCI protection is required.
Previously, measurements were made from inside edge of sink bowl to the receptacle.
Now, it'll be from inside edge to the fixed or stationary appliance itself.

CHAPTER 2

Article 210.8(F) Outdoor Outlets

Revision requiring GFCI protection be provided for outlets when older equipment that didn't require GFCI protection is replaced.

CHAPTER 2

Article 210.11(C) (4) Branch Circuits Required (C) Dwelling Units (4) Garage Circuits

Text was revised to clarify that 15 amp branch circuits are permitted for receptacle outlets installed in a dwelling unit garage if they are in addition to the required 20 amp outlets from 210.52(G)(1).

CHAPTER 2

Article 210.11(C) (4) Branch Circuits Required (C) Dwelling Units (4) Garage Circuits

Text was revised to clarify that 15 amp branch circuits are permitted for receptacle outlets installed in a dwelling unit garage if they are in addition to the required 20 amp outlets from 210.52(G)(1).

Exception No. 2 allows the required 20 amp. circuit supplying a single-bay garage to supply other equipment in accordance with 210.23(A)(1) and (A)(2). APPLIES ONLY TO SINGLE BAY GARAGES

CHAPTER 2

Article 210.12 Arc-Fault Circuit-Interrupter Protection

Entire section has been reformatted:

Why it happened: This revision was done to provide the user of the Code an easier way to find important references pertaining to AFCI requirements. The 10-ampere branch circuit was added to the branch circuit sizes allowed for these locations. Subdivisions were also renamed.

Subdivision (A), Means of Protection, now lists the protection methods available.

Subdivision (B), Dwelling Units, contains a list format of the locations requiring the 120-volt, single-phase, 10, 15, and 20-ampere branch circuit outlets or devices to have AFCI protection.

Subdivision (C), Dormitory Units, contains a list format of locations requiring the 120-volt, single-phase, 10, 15, and 20-ampere branch circuit outlets or devices to have AFCI protection.

CHAPTER 2

Article 210.12 Arc-Fault Circuit-Interrupter Protection

Entire section has been reformatted:

Subdivision (D), Other Occupancies, contains a list format of locations requiring the 120-volt, single-phase, 10, 15, and 20-ampere branch circuit outlets or devices to have AFCI protection.

Subdivision (E) is entitled Branch Circuit Wiring Extensions, Modifications, or Replacements.

CHAPTER 2

Article 210.23 Permissible Loads, Multiple Outlet Branch Circuits 10 Ampere Branch Circuits-Permitted and Not Permitted

Direction was necessary so that users of the Code understood how to install a 10-ampere branch circuit if they chose to do so.

A 10-ampere load can supply lighting outlets, lighting circuits for bathroom and laundry area exhaust fans within dwelling units, and a gas fireplace unit served by an individual branch circuit.

A 10-ampere branch circuit cannot supply receptacle outlets, fixed appliances (except as permitted for individual branch circuits), garage door openers, or laundry equipment.

CHAPTER 2

Article 210.52(C) Island and Peninsular Countertops and Work Surfaces

Previously required receptacles serving countertops for an island or peninsula have been made optional.

The receptacle outlet will no longer be allowed to be placed on the side of an island or peninsular location. If a receptacle is desired, it will need to be in or on the countertop or worksurface. This decision will be made by the builder, homeowner, and/or electrical contractor. A city ordinance or amendment might also modify these NEC requirements.

In the event a receptacle outlet is not provided for the island or peninsular countertop or work surface, the electrical contractor must provide a method to the island or peninsula for the future addition of a receptacle outlet. This could be a raceway to the island or peninsula location or a wiring method (example: NM cable in a box with cover) left in an accessible location.

CHAPTER 2

Article 220.5(C) Floor Areas

-areas such as garages, or unused or unfinished space(s) are no longer excluded from the calculated floor area of the building, dwelling unit, or other areas. A new subdivision (C) was added to Section 220.5(C), Floor Areas.

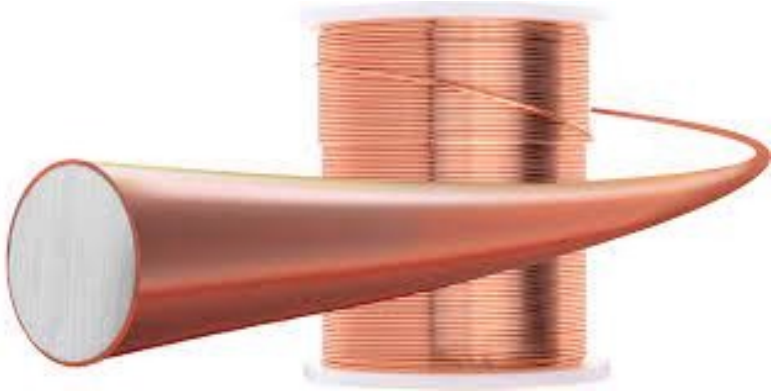
Previous text included language that may be considered subjective such as “not adaptable for future use.” Additionally, garages and other spaces, previously exempted from the square foot calculation, often are used as ancillary space to the habitable portions of the dwelling and as such should be included in dwelling, building, or other space square foot calculation.

CHAPTER 2

Article 240.4(D)(3) 14 AWG Copper-Clad Aluminum

14 AWG Copper-Clad Aluminum was added to the list of small conductors permitted per NEC 140.4(D).

The overcurrent protection device rating for the conductors cannot exceed 10 amperes, and the maximum continuous load on the circuit cannot exceed 8 amperes. Additionally, any branch-circuit-rated breakers or fuses that the conductors connect to must be listed and marked for use with such conductors.



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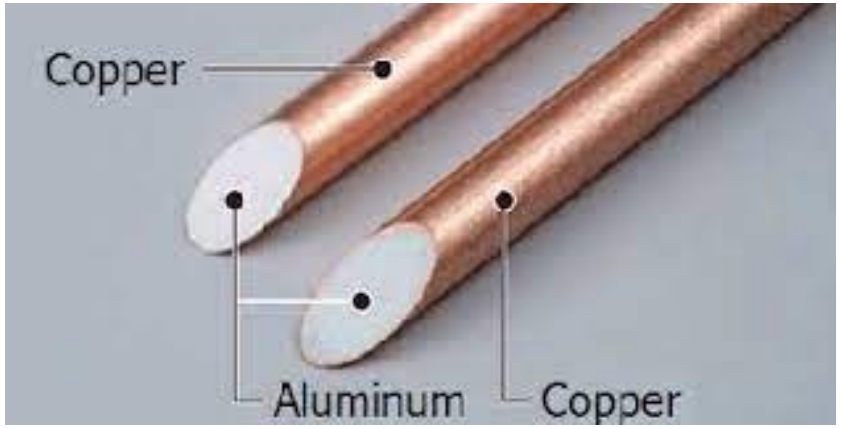
Article 240.4(D)(3) 14 AWG Copper-Clad Aluminum



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CHAPTER 3

New Article 305

Created for general wiring methods and installs applying to systems rated over 1000 volts ac and 1500 volts dc.

Helps centrally locate information regarding these medium voltage systems.

CHAPTER 3

Tables 310.16, 310.17, and 310.20

XHWN no longer listed as 90 degrees Celsius insulation.

CHAPTER 3

342.20(B) Intermediate Metal Conduit

Trade size 5 and 6 IMC now included as acceptable wiring method. The same was done for RMC and EMT.

CHAPTER 3

New Article 369 Insulated Bus Pipe/Tubular Covered Conductors(TCC) Systems

Insulated bus pipe (IBP), also known as Tubular Covered Conductor (TCC), has been used for many years in shipboard and utility applications in Europe and utility applications in the United States.

These systems are lighter, consume less volume, and take less time to install than a traditional system.

CHAPTER 3

New Article 371 Flexible Bus Systems

CHAPTER 4

404.14(D) Snap Switch Terminations

Snap switches with push-in terminals

Addresses concern that only solid copper conductors are used with push-in terminals. Additional evaluation needs to be made regarding copper-clad aluminum and these terminals.

406.3(D) was changed similarly regarding concerns for 15 amp receptacles with push-in terminals

CHAPTER 4

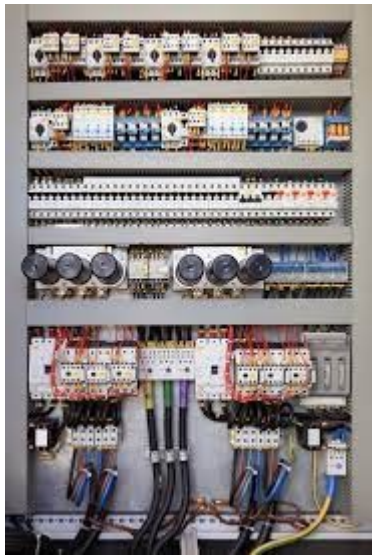
409.70 Surge Protection for Industrial Control Panels

New requirement due to fact that these panels are primarily assembled in the field from listed parts.

440.11 General (Air-Conditioning and Refrigerating Equipment

Language added requiring HVACR disconnects that have hinged covers and, when open, exposed live parts, be locked to prevent accidental contact.

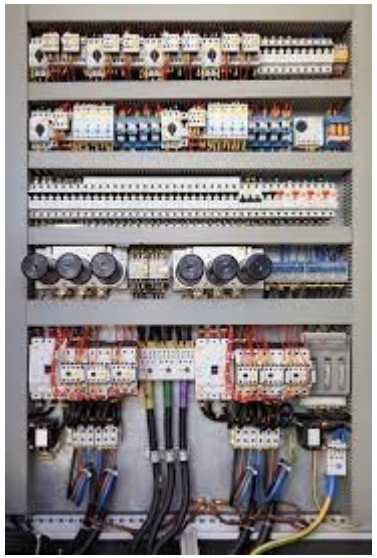
404.14 Reference to 110.26(A) added to make clear that working-space clearances are required for HVACR equipment disconnects.



CHAPTER 5

505.9(C) Chapter 9 Table 13

The new Table 13 in Chapter 9 provides a complete list of the types of protection for hazardous (classified) locations and improves the readability of 505.9(C)(2)(4).



CHAPTER 5

Article 512 Cannabis Oil Equipment and Cannabis Oil Systems Using Flammable Materials

This is a new and expanding industry, and Article 512 is intended to address the hazards associated with the extraction of cannabis oil. This is in response to concerns raised by authorities having jurisdiction (AHJ) and other industry members regarding fire and explosion hazards associated with equipment used to process and extract plant oils from cannabis.

CHAPTER 5

Article 517 Health Care Facilities

2023 NEC completes phased approach of changing references found in Article 517 from critical, general, basic, and support spaces to Category 1,2,3, and 4 Spaces.

Aligns with NFPA 99, the Health Care Code.

CHAPTER 6

Article 625.44(A) Portable Electric Vehicle Supply Equipment

In the interest of reducing charging time, some EV manufacturers have specified larger capacity circuits for charging their vehicles. This change will now recognize single-phase receptacles of up to 125/250 volts and 60 amperes for portable charging equipment.

Wrap-up!

Please bear in mind, this was not a comprehensive collection of all the latest changes to the National Electrical Code. Rather it was a sampling of some of the more significant changes.

Always be sure to consult your local codes office, inspector, or other authority having jurisdiction if clarification is needed.

And never forget the importance of refresher training, not only with the NEC but with arc/flash NFPA 70E as well.