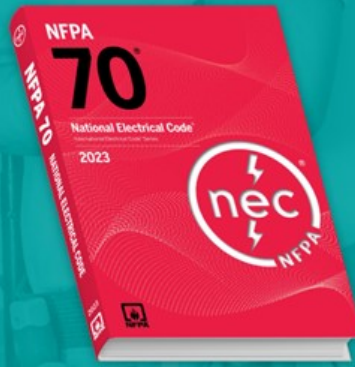


*Fayette County Building Safety
2023 NEC Code and Inspections*



Fayette County Building Official Summary:

The recent adoption of the 2023 National Electrical Code (NEC) has introduced significant changes that will impact building construction in Fayette County.

To ensure compliance with these new regulations, the Building Department will focus on several key areas during the electrical inspection process. We have highlighted those key areas of focus in the visual document below.

Hot Topics:

GFCI Protection in Kitchens: While the 2023 NEC mandates GFCI protection for all 125-volt, single-phase, 15- and 20-amp receptacles in kitchens, Fayette County will continue its current practice of spot-checking during the final electrical inspection, and we remove no appliances. Builders must ensure that all areas are appropriately protected.

HVAC Equipment: GFCI protection for receptacles serving HVAC equipment, See exception in 210.8 (F) No 2

Life Safety: The division will prioritize life safety and may enforce additional code requirements beyond those specifically listed here if safety concerns are identified.

By working collaboratively with builders and adhering to the 2023 NEC, we can ensure the safety and integrity of electrical installations in Fayette County.

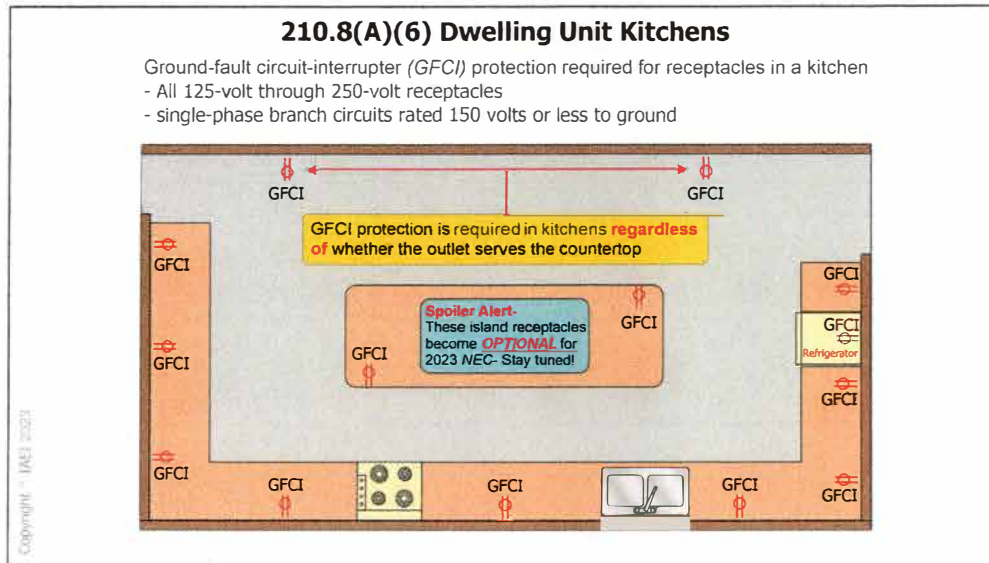
I am available to answer any questions, so please feel free to contact me at 770-305-5131 or via email at lnieber@fayettcountyga.gov.

Leslie Nieber

Building Official/ Director
Fayette County Department of Building Safety
Certified Building Code Official- CBCO
Certified County Official-ACCG

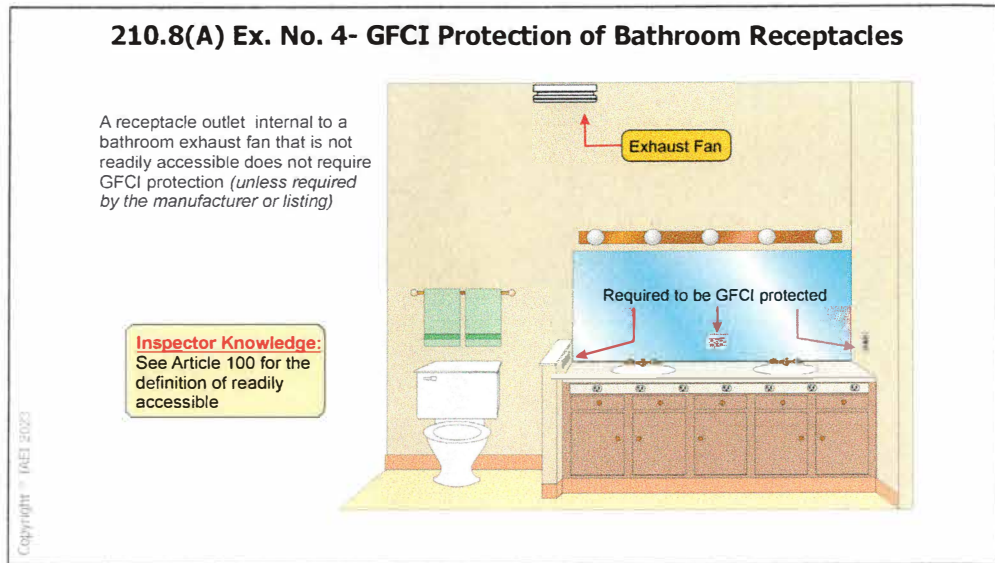
210.8(A)(6)

Dwelling Units- Kitchens



210.8(A)(6) Dwelling Units- Kitchens

- **Type of change:** Revision
- **The change:** Ground-fault circuit-interrupter (GFCI) protection has been expanded in Section 210.8(A)(6) to include any cord-and plug equipment in the kitchen, regardless of whether the outlet serves the countertop.
- **Why it happened:** There have been 104 electrocutions that have taken place from 2011 to 2022 based on the consumer products safety commission (CPSC) database. Eighty-one percent of these were working on an appliance or other equipment. GFCI protection should be installed to protect a person(s) working with cord-and-plug appliances or equipment. The proximity of the appliance to water isn't the only source of electrical danger. Most appliances and equipment contain a power supply and some sort of a grounded frame. This combination allows for the possible completion of a current route posing an electrical risk to the user.
- **How this will affect the electrical industry:** The electrical professional 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 that are serving countertop locations.

210.8(A)**Dwelling Unit Bathroom- Exception No. 4 Exhaust Fan Receptacle(s)****210.8(A) Dwelling Unit Bathroom- Exception No. 4 Exhaust Fan Receptacle(s)**

- **Type of change:** New
- **The change:** A new exception was added by CMP-2 to Section 210.8(A) to help the installer and enforcer understand ground-fault circuit-interrupter (GFCI) protection requirements for factory-installed exhaust fan receptacles.
- **Why it happened:** There was confusion as to if a receptacle found within an exhaust fan installed in the bathroom required GFCI protection. It was 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 bathroom exhaust fan assembly.
- **How this will affect the electrical industry:** This exception should alleviate disagreements between the installer and the inspector regarding the need for GFCI protection for exhaust fan assemblies found in bathrooms within dwelling units.

210.8(B)(7)

GFCI Protection for Personnel

210.8(B) Other Than Dwelling Locations (*GFCI Protection for Personnel*)

Language at list item (7) has been modified addressing cord-and-plug-connected **fixed and stationary appliances at sinks locations** in **other than dwelling units**

Sinks where **fixed or stationary appliances** are installed within 6 ft from the **top inside edge of the bowl of the sink**

Note: fixed or stationary appliances are connected to receptacles or cord connected

Note: This is not a kitchen area which is already covered in 210.8(B)(2)

Contact between the metal sink and the metal appliances have resulted in shocks and electrocutions

Receptacle connected stationary refrigerator → GFCI Protected

6 ft.

6 ft.

Garage Wood Working Counter

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210.8(B)(7) Other Than Dwelling Units, Sinks

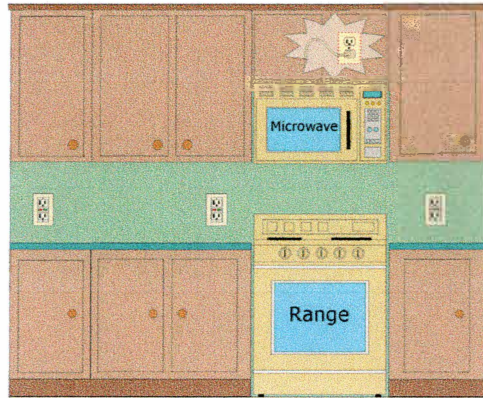
- **Type of change:** New
- **The change:** CMP-2 added “cord-and-plug-connected fixed and stationary appliances” to the existing language for sink locations.
- **Why it happened:** Substantiation indicated the electrical hazard was with the appliance being closer to the sink rather than the location of the receptacle. Fixed or stationary appliances such as a refrigerator or range are typically constructed of metal. These items can be located within 6 feet of a sink. A person at the sink that makes contact with these metal appliances has been injured or killed as a result. This action was necessary to prevent needless electrocutions or shocks to people from occurring.
- **How this will affect the electrical industry:** This change will require the electrical professional to provide GFCI protection for fixed or stationary appliances that are within 6 feet of the top inside edge of the bowl of a sink. Previously this measurement was taken from the top inside edge of the bowl of a sink to the receptacle to determine if GFCI protection was necessary. The electrical professional will need cooperation from the builder as to where fixed or stationary appliances will be located around sinks.

210.8(D)

Dwelling Units — Specific Appliances

210.8(D) Specific Appliances (GFCI Protection)

The appliances requiring ground-fault circuit-interrupter (GFCI) protection was placed into a list format for easier use (*dwelling and other than dwelling unit locations*)



GFCI protection applies to receptacles **supplied by a branch circuit of 150 volts or less to ground and 60 amperes or less in a single-phase system**

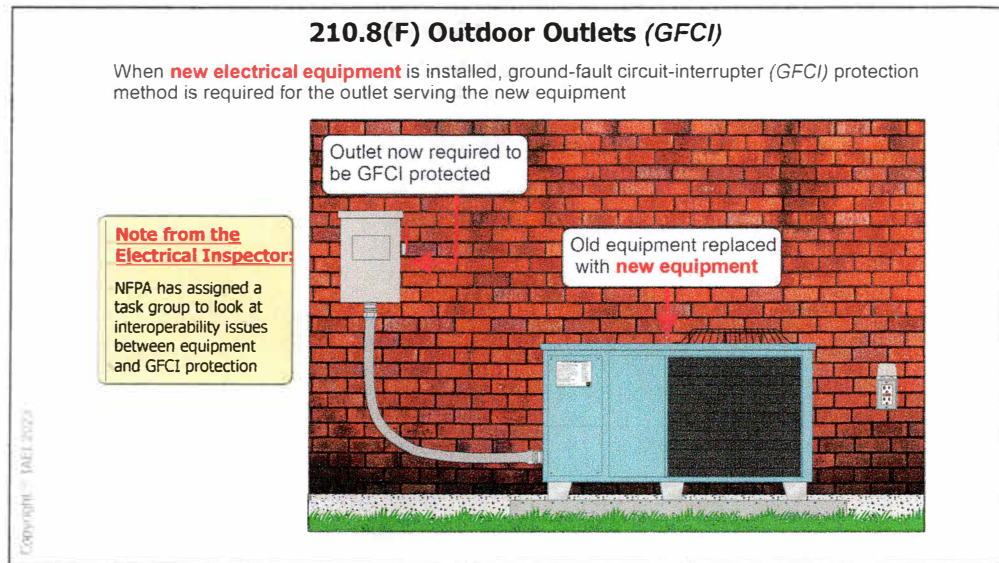
New list items include:

- electric ranges
- wall-mounted ovens
- counter-mounted cooking units
- clothes dryers
- microwave ovens

210.8(D) Dwelling Units — Specific Appliances

- **Type of change:** Revision
- **The change:** The appliance information at 210.8(D) requiring ground-fault circuit-interrupter (GFCI) protection was placed into a list format by CMP-2 for easier use. In the 2020 *NEC*, 210.8(D) did not include any specific appliances, rather it provided prescriptive requirements for achieving GFCI for appliances listed in a pointer to 422.5
- **Why it happened:** It was determined that users of the *Code* appreciate list items more than long-running sentences of text. Section 210.8(D) will also include five new appliances. These additional appliances can be hard-wired to outlets and would not meet the requirements to be GFCI protected. A shock hazard can exist with hard-wired equipment as well as cord-and-plug connected equipment.
- **How this will affect the electrical industry:** Users of the *Code* will find that appliances appear in a list format. New appliances on the list that require ground-fault circuit-interrupter (GFCI) protection include electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and microwave ovens. This will apply to a branch circuit or outlet supplied by 150 volts or less to ground and 60 amperes or less in a single-phase or three-phase system.

210.8(F) Outdoor Outlets



210.8(F) Outdoor Outlets

- **Type of change:** Revision
- **The change:** A new requirement has been added to 210.8(F) by CMP-2 that will require when equipment that is supplied by an outlet covered under the requirements of this section is replaced, the outlet shall be GFCI protected.
- **Why it happened:** This change addresses the issue of older existing outlets that are not GFCI protected when new or replacement equipment is provided. This change will increase the overall level of safety by providing the same level of protection as a new outlet.
- **How this will affect the electrical industry:** Designers and installers should be prepared to provide the same level of GFCI protection for equipment installed in the areas specified in Section 210.8(F), regardless of whether the outlet is new or existing.

210.8(F) Outdoor Outlets

Exception No. 2: Ground-fault circuit-interrupter protection shall not be required for listed HVAC equipment. This exception shall expire September 1, 2026

210.12

Arc-Fault Circuit-Interrupter Protection

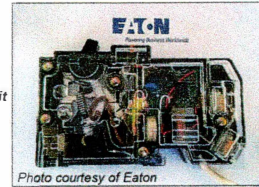
210.12 Arc-Fault Circuit-Interrupter Protection (AFCI)

This section was **reformatted** making it easier to reference and utilize the requirements and a **10-ampere branch circuit added** to allowable branch circuit sizes

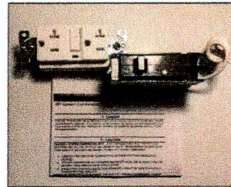
Section was reformatted for easier use:

- **Subdivision (A)**, Means of Protection
- **Subdivision (B)**, Dwelling Units
- **Subdivision (C)**, Dormitory Units
- **Subdivision (D)**, Other Occupancies
- **Subdivision (E)**, Branch Circuit Wiring Extensions/Modifications/Replacements

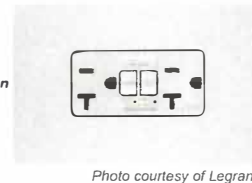
Cut Away
AFCI Circuit
Breaker



AFCI System
Combination
Rated Device



Dual function
AFCI/GFCI
Device



210.12 Arc-Fault Circuit-Interrupter Protection

- **Type of change:** New
- **The change:** CMP-2 reformatted this section making it easier to reference and utilize the requirements as well as introduce 10-ampere branch circuits as an allowable branch circuit size.
- **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.
 - 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*.
- **How this will affect the electrical industry:** The reformatting of this section will be very helpful to the electrical professional when looking for various requirements that pertain to AFCI protection and the locations where this protection is required to be installed. The opportunity to utilize a 10-ampere branch circuit based on the specific requirements will also afford a degree of flexibility to the electrical professional.

210.23

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

210.23 Permissible Loads

10 ampere branch circuits are now addressed in the *NEC*

A 10-ampere branch circuit can supply loads for:

- lighting outlets
- lighting circuits for bathroom and laundry area exhaust fans within dwelling units
- gas fireplace unit served by an individual branch circuit

A 10-ampere branch circuit cannot supply loads for:

- receptacle outlets
- fixed appliances (except as permitted for individual branch circuits)
- garage door openers
- laundry equipment

Installation requirements were necessary for the use of 10-ampere branch circuits if the installer chose to do so

Note: A 10-ampere receptacle configuration does not currently exist

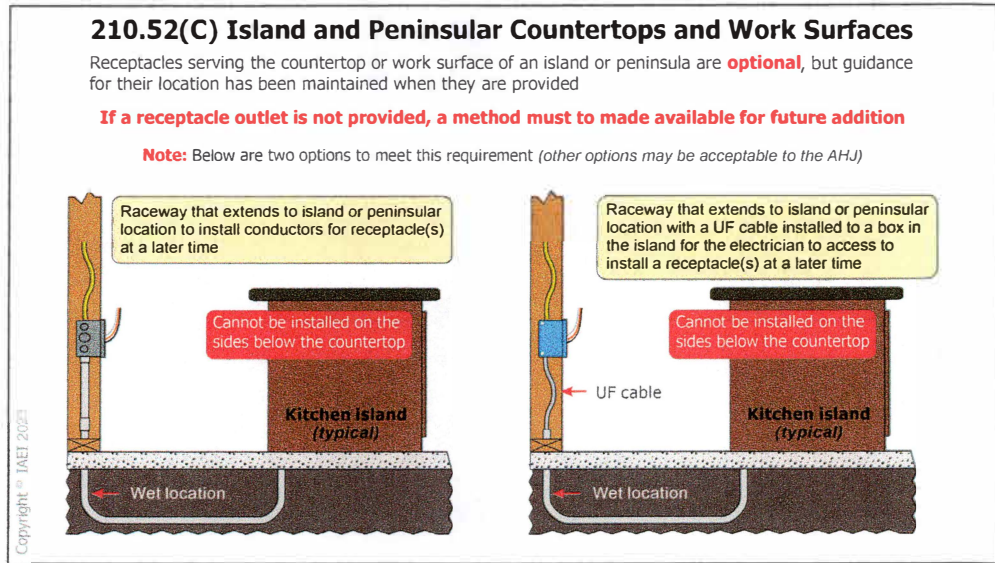
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210.23 Permissible Loads, Multiple-Outlet Branch Circuits, 10 Ampere Branch Circuits- Permitted and Not Permitted

- **Type of change:** Revision
- **The change:** Information for the permitted and non-permitted use of a 10-ampere branch circuit has been developed by CMP-2 and implemented into existing Section 210.23.
- **Why it happened:** 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.
- **How this will affect the electrical industry:** For instances when the installer installs or the AHJ inspects an installation involving a 10-ampere branch circuit, the above information will provide guidance to ensuring a compliant installation. The installation of a 10-ampere branch circuit is a choice. If you install a 10-ampere branch circuit, follow the permitted and not permitted use guidelines set forth by the *NEC*.

210.52(C)

Island and Peninsular Countertops and Work Surfaces



210.52(C) Dwelling Units- Island and Peninsular Countertops and Work Surfaces

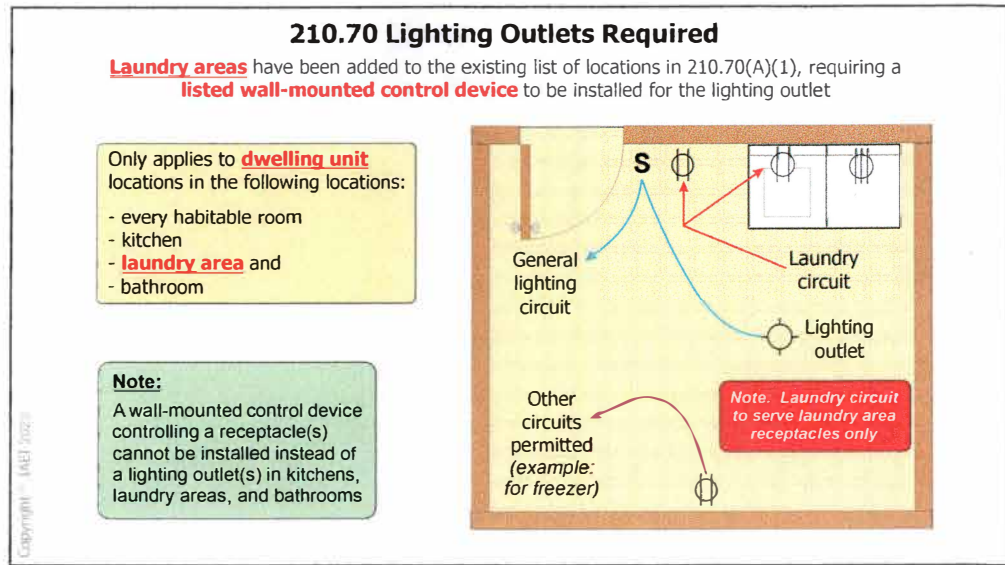
- **Type of change:** Revision
- **The change:** The requirement for receptacles serving the countertop or work surface of an island or peninsula has been made optional by CMP-2 in Section 210.52(C), but guidance for their location has been maintained when they are provided.
- **Why it happened:** Data compiled by the Consumer Products Safety Commission (CPSC) states 45 reports of burns or other injuries between January 1991 and 2020. An estimated 9,700 burns or other injuries were treated in U.S. hospital emergency rooms. These injuries were the result of spilling hot contents of countertop cooking appliances on children that came in contact with (pulled) the appliance cord. These resulted in second- and third-degree burn injuries, with 10 resulting in death. The investigations revealed that children and adults might pull power cords, or the cords may get snagged inadvertently when a person is walking by. A wheelchair-bound individual died from contents being pulled onto their lap area.
- **How this will affect the electrical industry:** The installation of a receptacle outlet for these locations will now be 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.

Fayette County Clarification: Islands and peninsulas must be equipped with conduit in place for future installations. Additionally, all slab-on-grade structures will require a slab electrical inspection. All issued permits after January 1, 2025, that does not comply with these requirements will be turned down.

210.70

Lighting Outlets Required



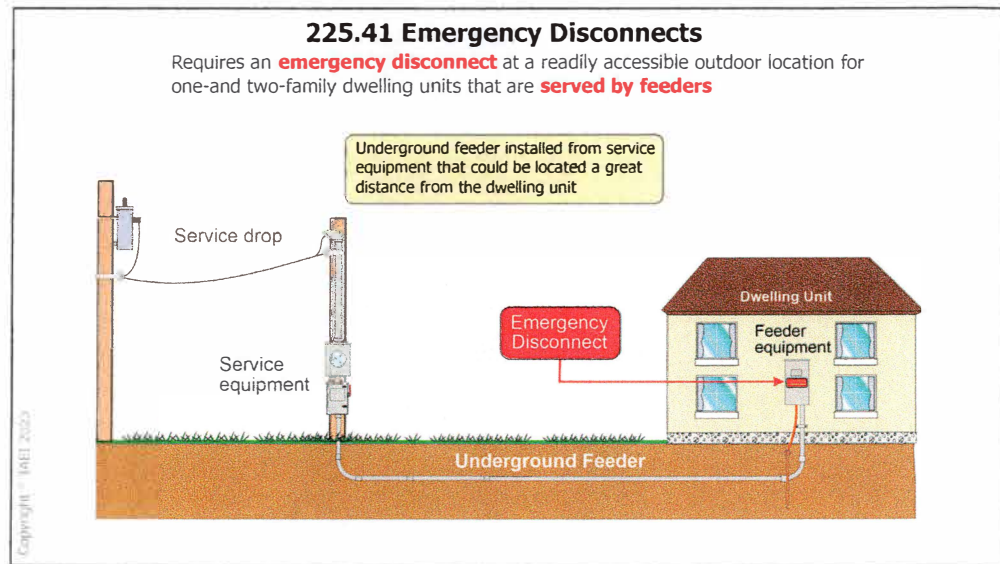
210.70 Lighting Outlets Required. (1) Habitable Rooms, Kitchens, Laundry Areas, and Bathrooms.

- **Type of change:** Revision
- **The change:** CMP-2 added laundry areas to the existing list of locations in 210.70(1), requiring a listed wall-mounted control device to be installed for the lighting outlet. Language was also added prohibiting a switch or wall-mounted control device to rely solely on a battery unless provided with a means to energize lighting outlets upon failure.
- **Why it happened:** A laundry area(s) deserves to be illuminated by a luminaire that is controlled by a wall-mounted control device located near the entrance to the room. The occupant is typically required to carry clothing or other items in this area. A wall-mounted control device controlling a receptacle(s) can be installed instead of a lighting outlet(s). This requirement only applies to laundry area(s) in dwelling unit locations.
- **How this will affect the electrical industry:** It is uncertain that this will have an impact on the electrical industry. It has been observed that many installers have already been installing a wall-mounted switch at the entrance of the laundry area to control the laundry area luminaire. By adding the laundry area to the existing locations (every habitable room, kitchen, and bathroom), the *Code* specifically requires this to be done.

LAEI Codes and Standards Committee

225.41

Emergency Disconnects



225.41 Emergency Disconnects

- **Type of change:** New
- **The change:** The new section was added by CMP-10 to require an emergency disconnect at a readily accessible outdoor location for one-and two-family dwelling units that are served by feeders. The disconnect must be on or within sight of the dwelling unit.
- **Why it happened:** This change is an expansion of 230.85, which under the 2020 *NEC* only included services for one-and two-family dwelling units. It was recognized that a one-and two-family dwelling unit is/are not always fed directly by a service but instead by an outdoor feeder. The requirement was added to ensure that all new one-and two-family dwelling units are provided with an emergency disconnect located at a readily accessible outdoor location. The emergency disconnect must be marked as “EMERGENCY DISCONNECT.” A plaque or directory must also be provided adjacent to the emergency disconnect identifying the location(s) of any other energy source disconnect on the premises.
- **How this will affect the electrical industry:** Section 225.41 will help increase the safety of an electrical system by providing first responders (and others) easy access to shut down the electrical system (and other sources of power on the premises) for a one-and two-family dwelling.

230.67(A) Surge-Protective Devices

230.67(A) Surge-Protective Devices

Changed the existing term “dwelling units” to “the following occupancies” and added a list of additional locations that now require protection by a surge-protective device (SPD)

Additional occupancies now include:

- dormitory units
- guest rooms and guest suites of hotels and motels
- areas of nursing homes and limited-care facilities used exclusively as patient sleeping rooms

Electronic life-saving equipment such as fire alarm systems, GFCIs, AFCIs, and smoke alarms, could be rendered inoperable when a surge occurs
(Many times, this damage is undetected by the owner)

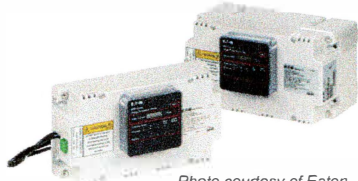


Photo courtesy of Eaton




Photo courtesy of Siemens

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230.67(A) Surge-Protective Devices

- **Type of change:** Revision
- **The change:** CMP-10 revised subdivision 230.67(A) by changing the term *dwelling units* to *the following occupancies* and added a list of additional locations that now require protection by a surge-protective device (SPD).
- **Why it happened:** Service equipment can at times be subjected to surges that inflict damage on systems designed to provide life safety. Recognized industry authorities such as NEMA, IEEE, and UL, have collected data showing surges cause significant damage. Insurance organizations are recognizing the need for surge protection to limit claims for damage to sensitive electronic devices. Electronic life-saving equipment such as fire alarm systems, GFCIs, AFCIs, and smoke alarms, could be rendered inoperable when a surge occurs. Many times, this damage is undetected by the owner.

Prior to the 2023 *NEC*, there was only a requirement for surge protection at dwelling units. Additional occupancies have now been added that include: dormitory units, guest rooms and guest suites of hotels and motels, and areas of nursing homes and limited-care facilities used exclusively as patient sleeping rooms.

- **How this will affect the electrical industry:** The electrical professional will need to be aware of the new occupancies requiring surge protection. The installer and inspector (AHJ) are key elements in providing this protection and ensuring surge protection is installed and providing this much-needed protection. These new occupancies requiring protection from surges will also help protect both life and property.

230.85

Emergency Disconnects

230.85 Emergency Disconnects (1 and 2 Family Dwelling Units)

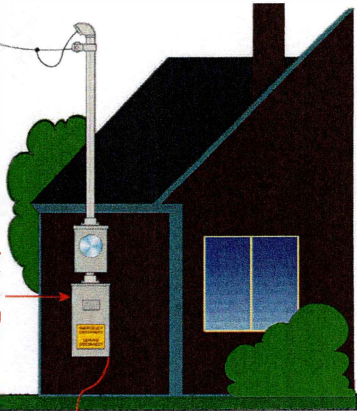
Section was **reorganized into subdivisions with titles** to better align with the formatting requirements of the *NEC Style Manual*

Applies to new (or replaced) service equipment
Does not apply when only meter sockets, service conductors, service raceways, and/or fittings are replaced
 Requires a **plaque or directory** adjacent to the emergency disconnect identifying the location(s) of any **other energy source disconnect** on the premises

The layout of 230.85:

- General
- Location
- Rating
- Grouping
- Disconnects
- Replacement
- Location of Other Isolation Disconnects
- Marking

Outdoor emergency service disconnecting means



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230.85 Emergency Disconnects

- **Type of change:** Revision
- **The change:** Section 230.85 was reorganized by CMP-10 into subdivisions with titles to better align with the formatting requirements of the *NEC Style Manual*.
- **Why it happened:** The additional provisions were added for clarity to help *NEC* users better understand the requirements regarding emergency disconnects for one- and two-family dwelling units. Requirements were added to clarify that meter disconnects integral to meter mounting equipment or other listed disconnects used as the emergency disconnect cannot be marked as “suitable ONLY for use as service equipment.” This requirement does not apply to the regular service disconnect(s) for the one- and two-family dwelling [see **230.85(B)**]. **Section 230.85(C)** was added to clarify that all of 230.85 applies to new (or replaced) service equipment. However, an exception was added to clarify that when only meter sockets, service conductors, service raceways, and/or fittings are replaced, 230.85 does not apply. **Section 230.85(D)** specifies that there must also be provided a plaque or directory adjacent to the emergency disconnect identifying the location(s) of any other energy source disconnect on the premises.
- **How this will affect the electrical industry:** The provisions of 230.85 for emergency disconnects will be better understood by the electrical professional due to the clarifications and reorganization of the requirements. The emergency disconnect(s) will help increase the safety of an electrical system by providing first responders (and others) easy access to shut down the electrical system (and other sources of power on the premises) for a one- and two-family dwelling.

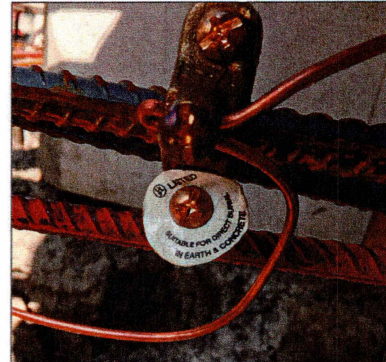
250.70

Grounding and Bonding Conductor Connection to Electrodes

250.70 Methods of Grounding and Bonding Conductor Connection to Electrodes

The section has been divided into new subparts (A) and (B) and the **list of methods for connection to grounding electrodes has been eliminated**

New informational note was added to clarify that a connector or fitting that is listed as suitable for direct burial is also listed and suitable for concrete encasement



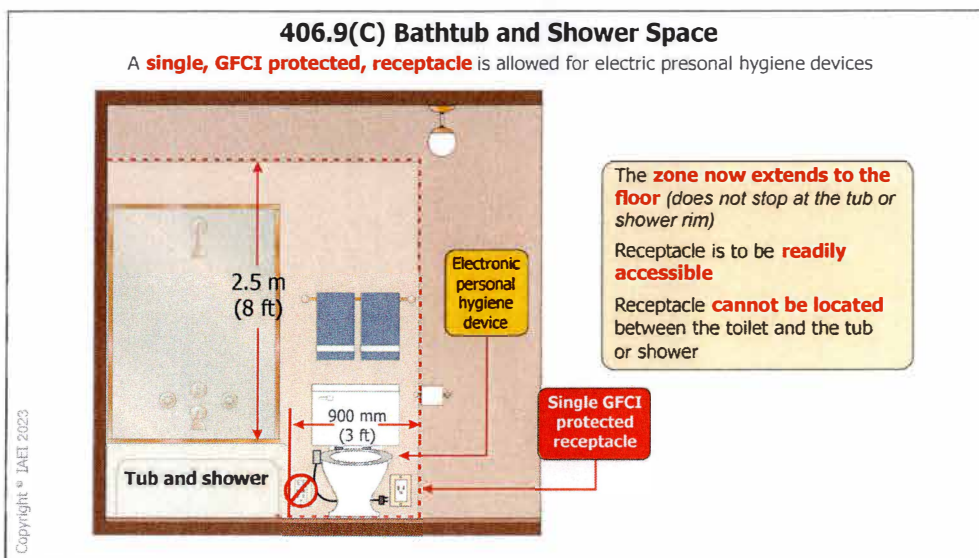
Photos courtesy of IAEI Archives

250.70 Methods of Grounding and Bonding Conductor Connection to Electrodes

- **Type of change:** Relocation / Revision
- **The change:** The section has been divided by CMP-5 into new subsections (A) and (B), and the list of methods for connection to grounding electrodes has been eliminated. The list item for the communications system has been moved to the new list item (B) as a permitted method. A new informational note was added to clarify to users that a connector or fitting that is listed as suitable for direct burial is also listed and suitable for concrete encasement.
- **Why it happened:** Public inputs were made to CMP-5 for several changes. One of these identified the fact that there are no pipe fittings, pipe plugs, or other devices that screw into a pipe that are suitable or identified for attaching a grounding electrode conductor. Therefore, this list item was removed. The relocation of the list item for communications equipment left only one item in the list, and it was already covered in the main section text; therefore, all the list items could be deleted. The informational note was added from another public input to recognize that UL 467 for the listing of fittings and devices for connecting to grounding electrodes does not separate listing for direct burial from concrete encasement.
- **How this will affect the electrical industry:** The reorganization should give some clarity to electrical professionals and eliminate some connection means that are not available to be used. The informational note will address concerns that have been raised by installers or inspectors concerning these types of grounding connections.

406.9(C)

Bathtub and Shower Space



406.9(C) Bathtub and Shower Space

- **Type of change:** Revision
- **The change:** CMP-18 clarified receptacle restrictions in and around bathtubs and showers in Section 406.9(C). A new Exception #4 was added to allow single receptacles within 36" of the tub or shower with limitations.
- **Why it happened:** This change was accepted because the area below the bathtub rim was not included in the language added in the 2020 *NEC*. The areas outside of and below the rim of a bathtub are just as important as the area above the rim extending out three feet. A new Exception #4 was added to accommodate the toilets with electronic seats and other functions, which require 120-volt receptacles to be installed within the 36" zone or personal hygiene devices for people with physical limitations. This receptacle is required to be a single receptacle and not be located in the space between the bathtub or shower and the toilet or bidet. The single receptacle in this location would need to be ground-fault circuit-interrupter (GFCI) protected.

The Plumbing Manufacturers International submitted a Tentative Interim Amendment (TIA) during the summer of 2021 for this allowance for the 2020 *NEC*. TIA # 1598 was accepted and approved; therefore, this exception is allowed with the adoption of the 2020 *NEC*. Their concern was that some consumers with physical limitations needed the devices, and without this exception, it provides an undue burden on these consumers.

- **How this will affect the electrical industry:** These changes help clarify the receptacle requirements for the electrical professionals in areas containing a bathtub or shower space. They will enhance the safety within these areas.