

Overview of 2005 NEC® Code Changes

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SECTION 210.4(B) and 210.7(B)

Disconnection of Multiple Branch Circuits and Multiwire Branch Circuits



- Ungrounded conductors must be simultaneously disconnected when two or more branch circuits or a multiwire branch circuit supplies devices on the same yoke.

A means to simultaneously disconnect the ungrounded conductors must be provided at the point where the branch circuit originates when two or more branch circuits supply devices on the same yoke or when a multiwire branch circuit supplies more than one device on the same yoke. In the 2002 NEC the multiwire branch circuit requirement (210.4(B)) applied only to dwellings and the multiple branch circuit requirement (210.7(B)) applied only to receptacles. The 2005 NEC now requires simultaneous disconnect in all locations and in all cases where more than one of any type of device on the same yoke is supplied by a multiwire branch circuit or where devices on the same yoke are supplied by multiple branch circuits. This requirement applies to receptacles, switches, pilot lights and similar devices on the same yoke.



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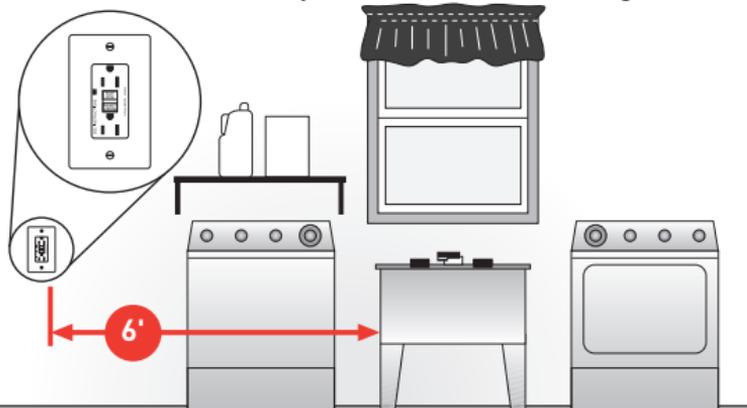
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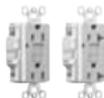
SECTION 210.8(A)(7)

GFCI Protection of Receptacles Near Sinks in Dwellings



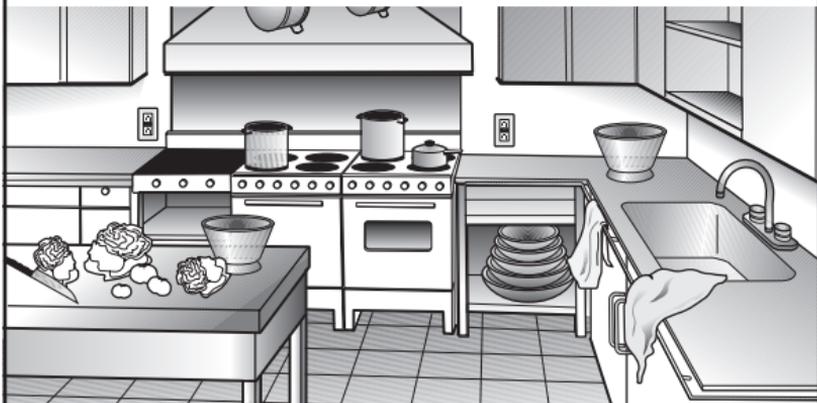
- 15 and 20A, 125V receptacles near laundry, utility and wet bar sinks must be GFCI protected.

This section has been revised to require GFCI protection for receptacles installed within 6 feet of laundry sinks, wet bar sinks and utility sinks in dwelling units. This requirement previously applied only to receptacles installed in countertop surfaces within 6 feet of wet bar sinks.



SECTION 210.8(B)(2)

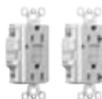
GFCI Protection of Receptacles in Other Than Dwellings



- 15 and 20A, 125V receptacles in commercial kitchens must have GFCI protection.

There are new requirements for GFCI protection of 15 and 20A, 125V receptacles installed in the following location in other than dwelling units:

- Commercial and institutional kitchens, where the kitchen is defined as an area with a sink and permanent facilities for food preparation and cooking. All 15 and 20A, 125V receptacles in these areas must be GFCI protected.



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SECTION 210.8(B)(4)

GFCI Protection of Receptacles in Other Than Dwellings



- 15 and 20A, 125V receptacles in outdoor public spaces must have GFCI protection.

There are new requirements for GFCI protection of 15 and 20A, 125V receptacles installed in the following location in other than dwelling units:

- Outdoors in public spaces, where a public space is any space that is for use by or accessible to the public. All 15 and 20A, 125V receptacles in these areas must be GFCI protected except for receptacles that are not readily accessible and are supplied from a dedicated branch circuit for snow-melting and deicing equipment.



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SECTION 210.8(B)(5)

GFCI Protection of Receptacles in Other Than Dwellings



There are new requirements for GFCI protection of 15 and 20A, 125V receptacles installed in the following location in other than dwelling units:

- A 15 or 20A, 125V outdoor receptacle required by 210.63 for the servicing of heating, air conditioning and refrigeration equipment.



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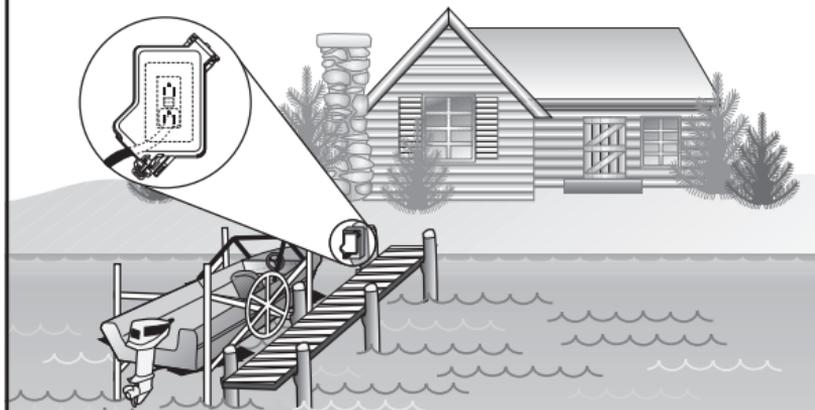
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SECTION 210.8(C)

GFCI Protection for Boat Hoist Outlets



- 15 and 20A, 125V outlets for boat hoists in dwellings must be GFCI protected.

Boat hoist outlets in dwelling unit locations supplied by 15 and 20A, 125V branch circuits must have GFCI protection. It is important to note that this requirement applies to all boat hoist outlets, not only receptacle outlets.

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SECTION 210.52(C)(1) Exception, (2) and (5)

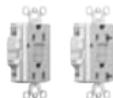
Receptacles in Countertops



- Receptacles behind sinks and ranges and in wall and island countertops.

A new exception and figure have been added to describe the section of the counter where receptacles are not required behind ranges and sinks in wall counter spaces. Receptacle outlets are not required in a space behind a range or sink if the space is less than 12 inches deep. When the sink or range is mounted in a corner, receptacle outlets are not required if the space behind the range or sink is less than 18 inches deep when measured to the back corner of the counter. When a range or sink is installed in an island counter, the island counter is considered to be divided into two separate counter spaces if the width of the counter behind the range or sink is less than 12 inches. These changes help explain how separate countertop spaces are determined.

Although receptacles may be installed behind sinks and ranges in the locations described above, these receptacles are not considered as receptacle outlets required by 210.52(C).



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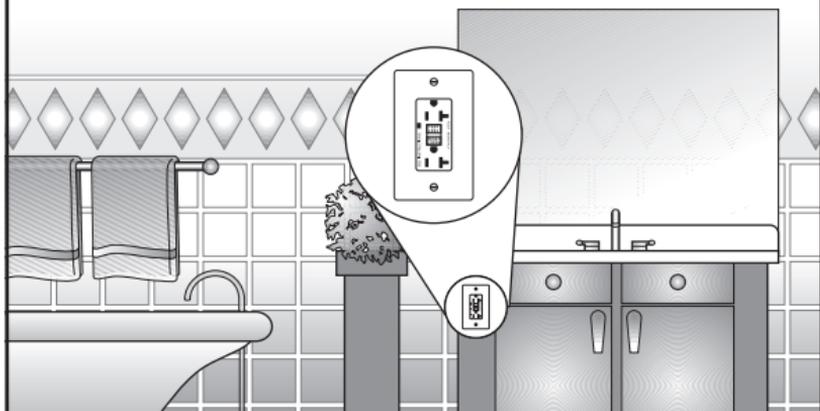
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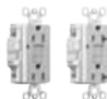
SECTION 210.52(D) Exception

Receptacles in Bathrooms



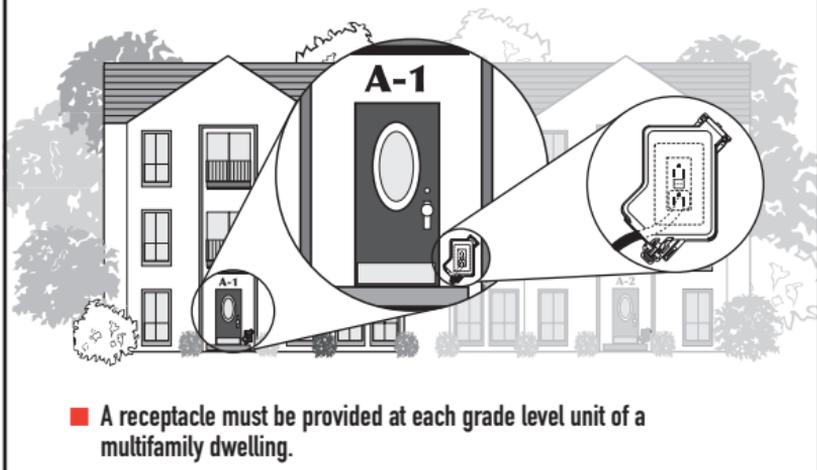
- A bathroom receptacle may be installed in the basin cabinet.

This new exception permits the receptacle that is required within 3 feet of the bathroom basin to be installed in the side or the face of the basin cabinet, provided the receptacle is not more than 12 inches below the countertop.

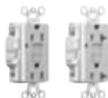


SECTION 210.52(E)

Outdoor Receptacles for Multifamily Dwellings



The 2002 NEC requires a receptacle at the front and back of a one-family dwelling and each unit of a two-family dwelling. This requirement will now apply to multifamily dwellings in the 2005 NEC. A receptacle must be installed for each dwelling unit of a multifamily dwelling that is at grade level and has an individual entrance or exit. This change was made because it is likely that the receptacles in this type of multifamily dwelling will have the same use as those in single- and two-family units.



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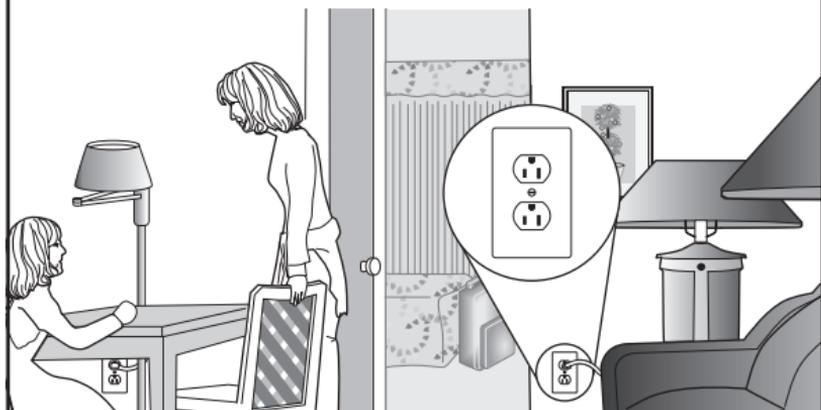
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SECTION 210.60(A)

Receptacles in Guest Rooms and Guest Suites



- Guest rooms and guest suites do require the same receptacle installation as dwellings.

The 2002 NEC requires guest rooms that meet the definition of a dwelling unit to have receptacle outlets installed in accordance with 210.52. However, new definitions of a guest room and guest suite have been added to Article 100 of the 2005 NEC that differentiate them from dwelling units. To be clear that a guest room or guest suite that has the same characteristics as a dwelling unit continues to have receptacles installed per 210.52, it was necessary to revise the wording of 210.60(A). The wording in the 2005 NEC states that "Guest rooms or guest suites provided with permanent provisions for cooking..." must have receptacles installed per 210.52.

This was not intended as a change in the requirement but the wording was changed to be certain that the same requirements for installation of receptacles will continue to apply.



SECTION 210.63 Exception
Receptacles for Service of Air Conditioning Equipment



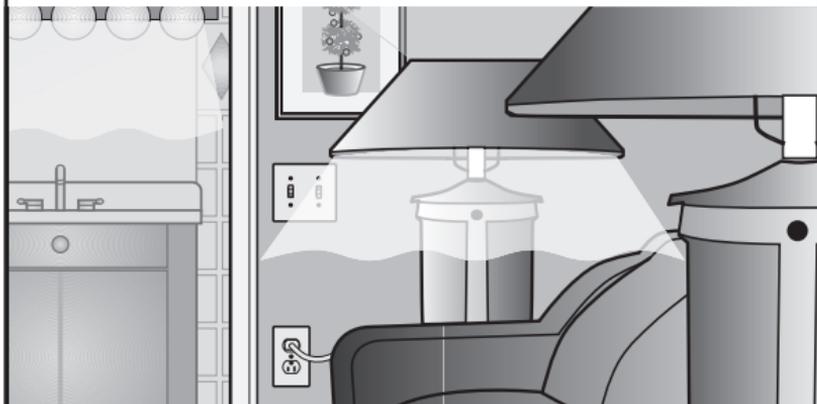
■ A receptacle is not required for the servicing of evaporative coolers.

The illustration shows a side view of a single-story house with a gabled roof. On the roof, there is a white rectangular evaporative cooler unit with a pipe extending from it. The house has a door and two windows. In the background, there are mountains and cacti, suggesting a desert environment.

An exception has been added stating that a receptacle outlet is not required for service of an evaporative cooler in one- and two-family dwellings. Evaporative coolers do not have the same maintenance requirements as other types of air conditioning equipment.

SECTION 210.70(B)

Lighting Outlets in Guest Rooms and Guest Suites

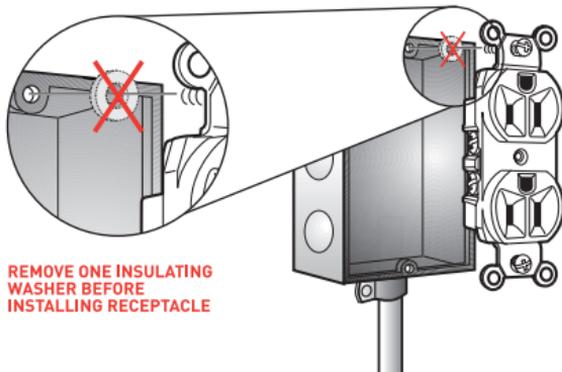


- A switch-controlled lighting outlet is required in habitable rooms and bathrooms.

This section has been revised to make it clear that at least one wall-switch-controlled lighting outlet is required in every habitable room and bathroom of a guest room or guest suite. An exception permits a switched receptacle instead of a switched lighting outlet in other than a bathroom and kitchen.

SECTION 250.146(A)

Grounding of Receptacles in Surface Mount Boxes



- A receptacle may be grounded by direct contact of the yoke with the metal box. The insulating washer requires removal before installation.

When a receptacle is mounted in a surface mount box, direct metal-to-metal contact between the receptacle strap and the box is permitted to ground the receptacle. The 2005 NEC requires removal of at least one of the insulating washers that retain the receptacle mounting screws to insure there will be good metal-to-metal contact between the receptacle yoke and the box. If the receptacle is equipped with one auto-ground clip, it is not necessary to remove the insulating washer. The auto-ground clip is designed to assure a positive ground.



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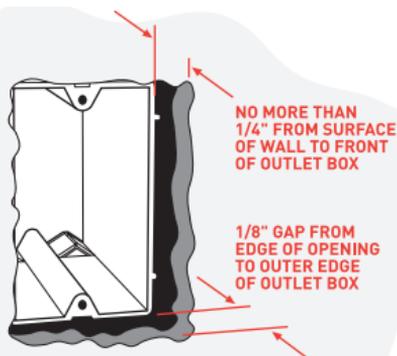
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SECTION 314.20 and 314.21

Outlet Boxes for Flush Mounting



- Flush-mounted boxes may be set back no more than 1/4 inch and must have the plasterboard repaired to within 1/8 inch of the box.

A box installed in a noncombustible wall or ceiling may be set back from the surface no more than 1/4 inch. A box installed in a plaster or plasterboard wall must have any damaged or incomplete surface repaired so that there are no gaps greater than 1/8 inch at the edge of the box. Both of these sections have been revised to add the words "boxes employing a flush-type cover or faceplate" to make it clear that these requirements apply to flush-mounted outlet boxes, such as flush device boxes commonly used for the installation of switches, receptacles and other wiring devices.



SECTION 314.27(D), 422.18

Outlet Boxes for Ceiling Fans



- Outlet boxes may be used for mounting ceiling paddle fans.

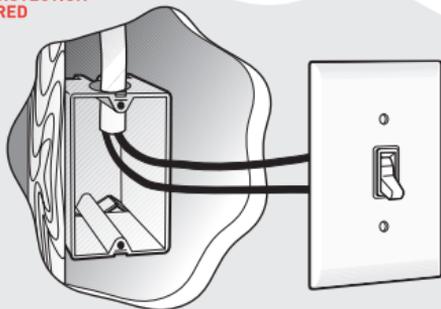
The requirements for using outlet boxes as the sole support for ceiling suspended (paddle) fans have been relocated to 314.27(D). 422.18 requires a ceiling suspended fan to be supported independently of an outlet box unless the outlet box or outlet box system is listed for support of the ceiling suspended fan as described in 314.27(D). Outlet boxes may not be used to support ceiling suspended fans weighing more than 70 pounds. Listed outlet boxes suitable for support of a ceiling suspended fan weighing up to 35 pounds are marked Acceptable for Fan Support. Outlet boxes suitable for supporting a ceiling suspended fan weighing more than 35 pounds are marked Acceptable for Fan Support and will also include the maximum weight of the fan that may be supported.



SECTION 404.9(B) Exception

Grounding of Metal Faceplate Used with a Snap Switch

GFCI PROTECTION
REQUIRED



- A snap switch without grounding provisions may be used with a metal faceplate if protected by a GFCI.

This section requires a snap switch to be installed so that a metal faceplate used with the snap switch will be effectively grounded. The exception states that in an installation where no grounding means exists within the snap switch enclosure, a snap switch without grounding provisions is permitted if a nonconductive cover is used with the snap switch. This exception has been revised in the 2005 NEC to permit the use of a metal faceplate with a snap switch that has no grounding means if the switch is GFCI protected.

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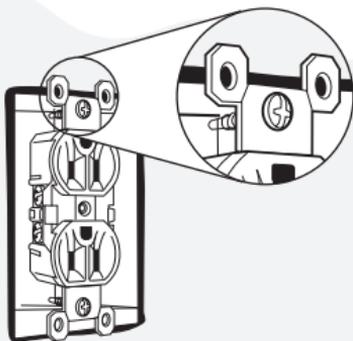


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SECTION 406.4(A)

Receptacle Mounting in Flush Device Boxes



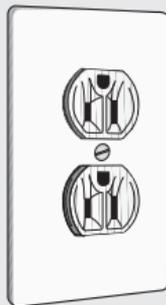
- Receptacles installed in boxes set back from the finished surface must be held rigidly against the surface.

This section requires that a receptacle mounted in a box that is set back from the finished surface must be installed so that that strap is held rigidly against the finished surface. In the 2002 NEC the requirement stated that the receptacle must be held rigidly at the wall surface. The term “at the surface of the wall” has been changed to “finished surface” to make it clear that this requirement applies not only to wall installations but to ceilings and any other surfaces where this type of installation takes place.



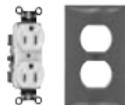
SECTION 406.4(D)

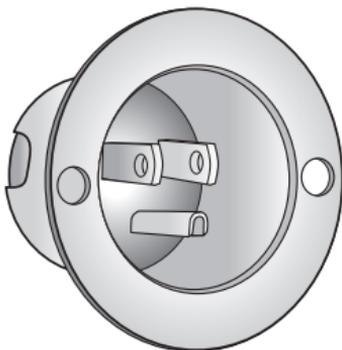
Position of Receptacle Faces



- A receptacle face must be flush with or protrude from a non-metallic cover plate.

This section requires that the receptacle face must be flush with or protrude from a non-metallic faceplate. This insures that there is no interference that prevents complete seating of the plug with the receptacle. Two new exceptions in the 2005 NEC will permit a non-metallic faceplate to completely cover a receptacle. Exception No. 1 permits a listed assembly consisting of a receptacle and a non-metallic faceplate that covers the face of the receptacle. This type of assembly must be designed so that the faceplate cannot be used on any other receptacle. Exception No. 2 permits a listed non-metallic faceplate of a maximum thickness of 0.040 inches to cover a receptacle.



SECTION 406.6(B) and (D)**Plugs and Flanged Surface Inlets**

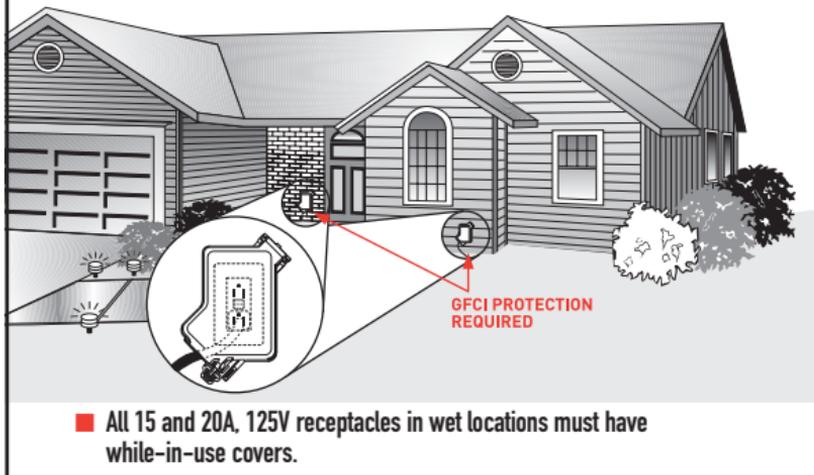
- The exposed blades of plugs and flanged inlets must be non-energized.

These two sections prohibit the exposed blades of an attachment plug and a flanged surface inlet from being energized. The blades can become energized only when a plug is inserted into a receptacle or when a cord connector is inserted into a flanged surface inlet. The receptacle or the cord connector are the source of supply. In addition, receptacles cannot be installed so that the insertion of an energized attachment plug is the source of the supply for the receptacle.



SECTION 406.8(B)(1) and (2)

Receptacles in Wet Locations



Previously, section 406.8(B)(1) required while-in-use covers for 15 and 20A, 125 and 250V receptacles in outdoor wet locations. A while-in-use cover will now be required for these receptacles in all wet locations, both outdoor and indoor. The Code Panel recognized that the same wet conditions that must be protected against in an outdoor wet location can also occur in an indoor wet location, such as in the vehicle washing area of a car wash.

Section 406.8(B)(2) requires a while-in-use cover in wet locations for all other receptacles that serve equipment that is not attended while in use. Examples given of this type of equipment, such as lawn sprinkler controls, landscape lighting and holiday lighting, seemed to imply that this requirement applied only to outdoor wet location receptacles. The examples have been deleted to make it clear that this section applies to outdoor and indoor wet locations where the receptacles are supplying unattended equipment.



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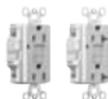
SECTION 406.8(C) and 550.13(F)(1)

Receptacles Near Bathtubs and Shower Stalls



- Receptacles shall not be installed within or directly over a bathtub or shower stall.

These sections have been revised to better define the area where a receptacle may not be installed. The Code Panel intends that receptacles should not be installed within the footprint of a tub or shower.



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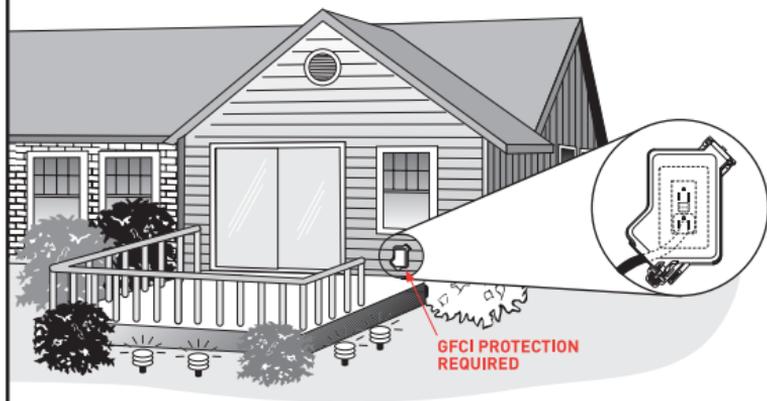
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SECTION 406.8(E)

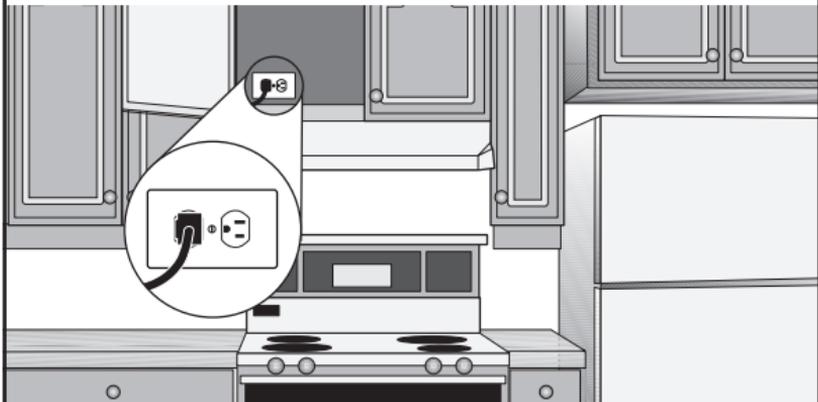
Receptacle Cover Sealing in a Wet Location



- A receptacle in a flush-mounted box in wet locations must have a cover that provides a watertight seal with the finished surface.

The 2005 NEC requires that a receptacle installed in a flush-mounted box in a wet location must have a weatherproof cover that provides a watertight seal with the finished surface. The 2002 NEC only considered this type of installation in a wall and stated that there must be a watertight connection between the cover and the wall. This has been revised to require the watertight connection between the cover and any finished surface. The Code Panel recognized that flush-mounted boxes are installed not only in walls.



SECTION 422.16(B)(4)**Range Hoods**

- Range hoods may be cord and plug connected.

Range hoods will be permitted to be cord and plug connected with a flexible cord if:

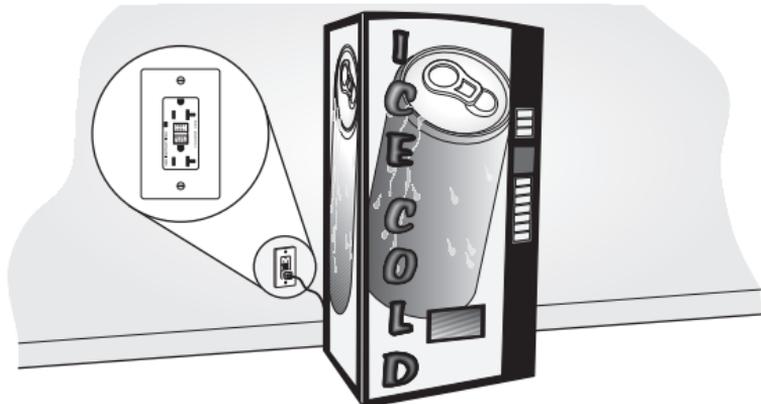
- the cord is terminated with a grounding type plug
- the cord is 18 to 36 inches long
- the receptacle is located to avoid physical damage to the cord and the receptacle is accessible
- the receptacle is supplied by an individual branch circuit

It is anticipated that the range hood may be upgraded at some future time to a combination microwave range hood.



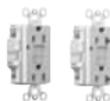
SECTION 422.51

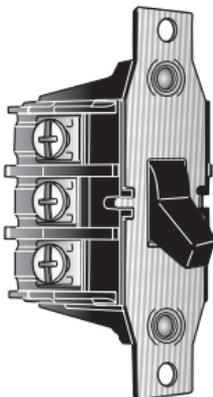
Cord-and-Plug-Connected Vending Machines



- GFCI protection is required for cord-and-plug-connected vending machines.

Effective January 1, 2005, cord-and-plug-connected vending machines must have built-in GFCI protection as part of the plug or the power supply cord. If a vending machine does not have built-in GFCI protection, it must be connected to a GFCI-protected outlet.



SECTION 430.8**Motor Controllers**

- **Motor controllers must be marked with a short circuit current rating.**

In addition to the other markings required by 430.8, a motor controller must now be marked with a short circuit current rating. However, a short circuit current rating is not required for the following:

- a controller rated less than 2 horsepower, 300V that is listed for general purpose branch circuits
- an attachment plug used as a controller for a portable motor of 1/3 horsepower or less as specified in 430.81(B)



SECTION 517.18(C)

Receptacles in Pediatric Locations in Health Care Facilities



- Tamper-resistant receptacles are required in pediatric locations of health care facilities.

The 2002 NEC required receptacles in patient care areas of pediatric wards to be listed as tamper-resistant. The 2005 NEC expands this requirement for listed tamper-resistant receptacles to include "...rooms, bathrooms, playrooms, activity rooms and patient care areas..." of pediatric wards to insure that tamper-resistant receptacles are provided where necessary in these areas.

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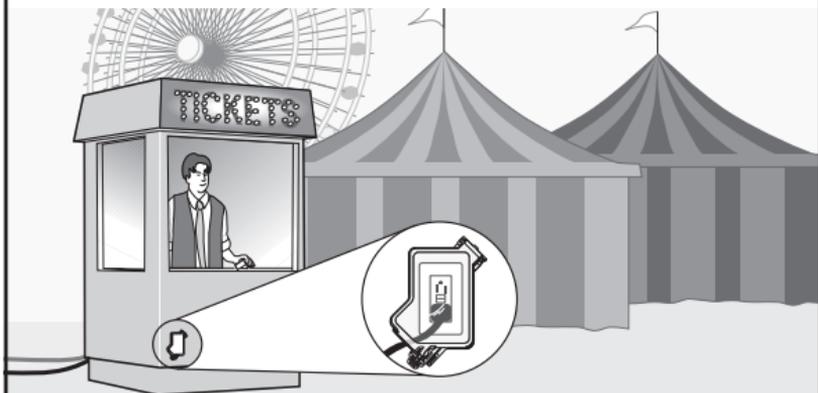


P&S Cat. #s: PTTR63H, TM8HWLTRCC

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SECTION 525.23

GFCI Protection for Carnivals, Circuses, Fairs



- GFCI protection is required for 15 and 20A, 125V non-locking receptacles.

This section in the 2005 NEC has been revised to specify where GFCI protection for receptacles is required and where it is not required. GFCI protection is required for non-locking receptacles used for assembly and disassembly and for receptacles accessible to the public. Locking receptacles used only for quick connect and disconnect of equipment do not require GFCI protection.



P&S Cat. #s: WIUC10, 1594, 2094

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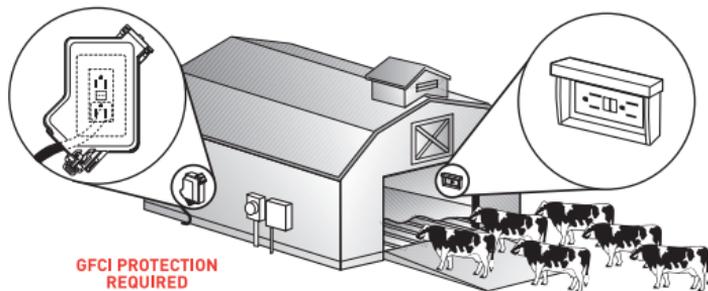
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SECTION 547.5(G)

Receptacles in Agricultural Buildings



**GFCI PROTECTION
REQUIRED**

- GFCI protection is required for 15 and 20A, 125V receptacles in wet locations, outdoors and in dirt confinement areas.

The 2002 NEC required GFCI protection in agricultural buildings for all 15 and 20A, 125V receptacles in damp or wet locations, outdoors and in areas having an equipotential plane. The 2005 NEC has been revised to make it clear that GFCI protection is also required for these receptacles that are located in dirt confinement areas for livestock.

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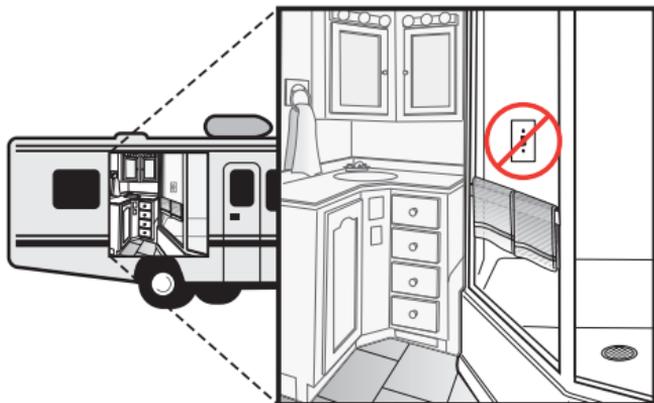
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SECTION 551.51(B)

Switches in Recreational Vehicles



- Switches may not be located in a tub or shower space.

Section 551.53(B) of the 2002 NEC prohibited locating a switch for lighting fixtures and exhaust fans in a tub and shower stall. This requirement has been relocated to Section 551.51(C) in the 2005 NEC and has been expanded to state that no switch may be mounted in a tub or shower space unless the switch is part of a listed shower or tub assembly. This requirement for the switch location in a tub or shower space in a recreational vehicle now agrees with the same general requirement for switches covered by Section 404.4.



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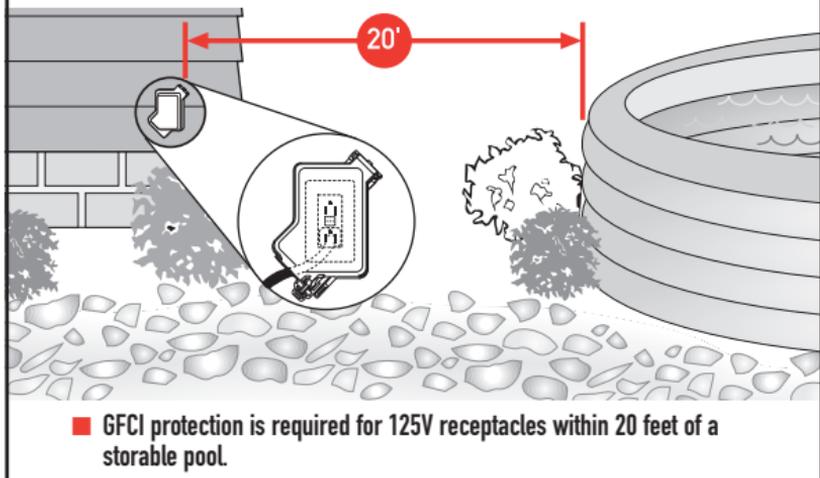
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SECTION 680.32

GFCI Protection of Receptacles Located Near Storage Pools

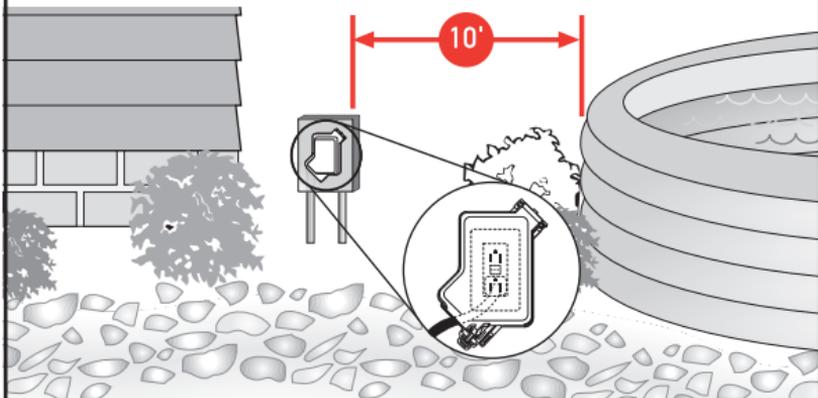


In addition to requiring GFCI protection for all electrical equipment and power supply cords used with storage pools, the 2005 NEC requires GFCI protection for all 125V receptacles located within 20 feet of the walls of a storage pool. A storage pool is one that is constructed on or above ground and is capable of holding water to a depth of 42 inches or is a pool with non-metallic or inflatable walls.



SECTION 680.34

Location of Receptacles Near Storable Pools



- Receptacles must not be within 10 feet of the pool.

This is a new section in the 2005 NEC specifying that receptacles must not be located within 10 feet of the walls of a storable pool.



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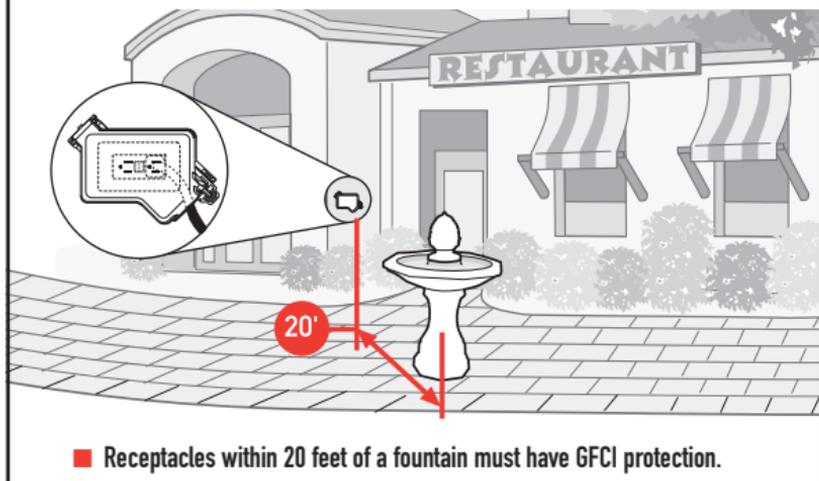
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SECTION 680.58

GFCI Protection of Receptacles Located Near Fountains



This section in the 2005 NEC requires GFCI protection for all 15 and 20A, 125 through 250V receptacles located within 20 feet of the edge of a fountain.

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