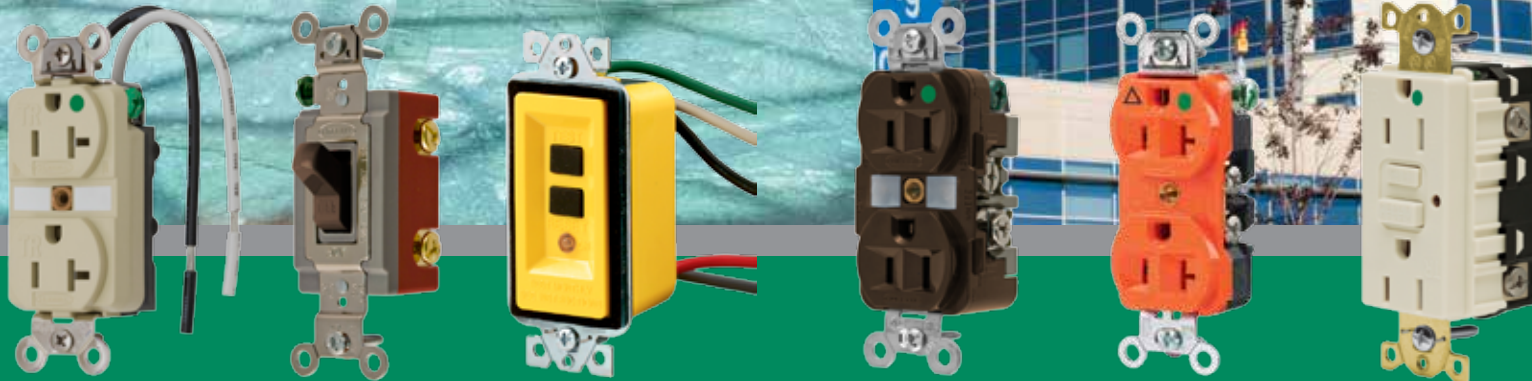




NEC® 2011 Code Change Reference Guide For Healthcare and Hospitality

HUBBELL®
Wiring Device-Kellems



Tamper-Resistant Receptacles in Hospitality

Installation of Tamper Resistant receptacles has been expanded to include guest rooms, guest suites and child care facilities.



NEC® Article 406.13 and 406.14

The National Electric Code® 2011 code has expanded the requirements for the installation of tamper resistant receptacles beyond dwelling units to include guest rooms, guest suites and child care facilities, including any dedicated play areas and child care facilities. **The new code states all 125 volt 15 & 20 ampere receptacles in guest room and guest suites must be listed tamper resistant devices.** This change offers families the same level of protection for small children afforded at home while traveling.

Patient Bed Location Receptacles

4-Plex® devices are acceptable for use with duplex and single devices for patient bed locations.



NEC® Article 517.18 and 517.19

The National Electric Code® 2011 code permits single, duplex and 4-PLEX® devices to complete the requirement for receptacle openings in patient bed locations. **General care area patient bed locations require 4 receptacles and critical care patient bed locations require 6 receptacles. These may be any combination of single, duplex or 4-PLEX style devices.** As expected all any of these shall be listed and identified as Hospital Grade.

Receptacles with IG Ground Terminals

IG receptacles are approved for use in portions of healthcare facilities other than patient care areas.







NEC® Article 517.16

The National Electric Code® 2011 code no longer permits the installation of isolated ground receptacles in patient care areas. Due to the requirement for multiple equipment grounding paths specified in article 517.13 isolated ground receptacles, typically identified by an orange triangle on the face of the receptacle, must not be used in patient care areas. Patient care areas are defined as bed locations, exam rooms, treatment rooms, clinics and similar areas in which it is intended that the patient will come in contact with ordinary appliances. **Isolated ground receptacles are still approved for use in other areas of healthcare facilities** including business offices, corridors, lounges, day room and dining areas.




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| 110.26 (D) Illumination Around Electrical Equipment | II. 600 Volts, Nominal, or Less 110.26 Spaces About Electrical Equipment. Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment (D) Illumination. Illumination shall be provided for all working spaces about service equipment, switchboards, panelboards, or motor control centers installed indoors <u>and shall not be controlled by automatic means only.</u> 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. | Working spaces must have illumination around service equipment, switchboards, panelboards, or motor control centers installed indoors are to have non-automatic means to control the lighting. Automatic lighting control devices such as occupancy, vacancy sensors can be used in conjunction with a manual bypass switch. |  HBL1221 | X | X |
| 210.8 (A) (7) Ground-Fault Circuit-Interrupter (GFCI) Protection for Personnel - Dwelling Units - Sinks | 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel. <u>Ground-fault circuit-interruption for personnel shall be provided as required in 210.8(A) through (C). The ground-fault circuit-interrupter shall be installed in a readily accessible location.</u> Informational Note: See 215.9 for ground-fault circuit interrupter protection for personnel on feeders. (A) Dwelling Units. All 125-volt, single-phase, 15- and 20- ampere receptacles installed in the locations specified in 210.8(A)(1) through (8) shall have ground-fault circuit interrupter protection for personnel. (7) Sinks — <u>located in areas other than kitchens</u> where receptacles are installed within 1.8 m (6 ft) of the outside edge of the sink | In an area other than kitchens and bathrooms where utility sinks are located, when receptacles are required ground fault circuit interrupting devices (GFCI) are to be installed within 1.8 m (6 ft) of the outside edge of the sink. |  GF20LA | X | X |
| 210.8 (B)(5) Ground-Fault Circuit-Interrupter (GFCI) Protection for Personnel - Other Than Dwelling Units - Sinks, Exception | 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel. <u>Ground-fault circuit-interruption for personnel shall be provided as required in 210.8(A) through (C). The ground-fault circuit-interrupter shall be installed in a readily accessible location.</u> Informational Note: See 215.9 for ground-fault circuit interrupter protection for personnel on feeders. (B) Other Than Dwelling Units. All 125-volt, singlephase, 15- and 20-ampere receptacles installed in the locations specified in 210.8(B)(1) through (8) shall have ground-fault circuit-interrupter protection for personnel. (5) Sinks — where receptacles are installed within 1.8 m (6 ft) of the outside edge of the sink. Exception No. 1 to (5): In industrial laboratories, receptacles used to supply equipment where removal of power would introduce a greater hazard shall be permitted to be installed without GFCI protection. Exception No. 2 to (5): <u>For receptacles located in patient bed locations of general care or critical care areas of health care facilities other than those covered under 210.8(B)(1), GFCI protection shall not be required.</u> | Provides an exemption that GFCI is not required for receptacles located close to sinks in patient bed locations of general care locations or critical care areas, due to possibility that the receptacle could be utilized to provide life support or other types of patient care. Nonetheless GFCI-protected receptacles remain required for bathrooms adjoining patient rooms in general care and critical care areas, in accordance with unchanged 210.8(B)(1). |  GFR8200HLA GFR8300HLA GFR8200HLATR GFR8300HLATR | X | X |
| 404.2 (C) Switches Controlling Lighting Loads - Exception 1 & 2 | 404.2 Switch Connections. (C) Switches Controlling Lighting Loads. <u>Where switches control lighting loads supplied by a grounded general purpose branch circuit, the grounded circuit conductor for the controlled lighting circuit shall be provided at the switch location.</u> <u>Exception: The grounded circuit conductor shall be permitted to be omitted from the switch enclosure where either of the following conditions in (1) or (2) apply:</u> (1) Conductors for switches controlling lighting loads enter the box through a raceway. The raceway shall have sufficient cross-sectional area to accommodate the extension of the grounded circuit conductor of the lighting circuit to the switch location whether or not the conductors in the raceway are required to be increased in size to comply with 310.15(B)(3)(a). (2) Cable assemblies for switches controlling lighting loads enter the box through a framing cavity that is open at the top or bottom on the same floor level, or through a wall, floor, or ceiling that is unfinished on one side. Informational Note: The provision for a (future) grounded conductor is to complete a circuit path for electronic lighting control devices. | Exception No. 1 allows the neutral conductor not to be used when raceway is installed and the neutral conductor can be added in the future if needed. Exception No. 2 allows the neutral conductor to not be used where the construction of the framing cavity will allow access for a cable containing the neutral conductor to be added in the future. |  HBL1221 | X | X |


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| <p>404.9 (B) Provisions for General-Use Snap Switches - Grounding, Exceptions</p> | <p>404.9 Provisions for General-Use Snap Switches. (A) Faceplates. Faceplates provided for snap switches mounted in boxes and other enclosures shall be installed so as to completely cover the opening and, where the switch is flush mounted, seat against the finished surface. (B) Grounding. Snap switches, including dimmer and similar control switches, shall be connected to an equipment grounding conductor and shall provide a means to connect metal faceplates to the equipment grounding conductor, whether or not a metal faceplate is installed. Snap switches shall be considered to be part of an effective ground-fault current path if either of the following conditions is met: (1) The switch is mounted with metal screws to a metal box or metal cover that is connected to an equipment grounding conductor or to a nonmetallic box with integral means for connecting to an equipment grounding conductor. (2) An equipment grounding conductor or equipment bonding jumper is connected to an equipment grounding termination of the snap switch. <i>Exception No. 1 to (B): Where no means exists within the snap-switch enclosure for connecting to the equipment grounding conductor, or where the wiring method does not include or provide an equipment grounding conductor, a snap switch without a connection to an equipment grounding conductor shall be permitted for replacement purposes only. A snap switch wired under the provisions of this exception and located within 2.5 m (8 ft) vertically, or 1.5 m (5 ft) horizontally, of ground or exposed grounded metal objects shall be provided with a faceplate of nonconducting noncombustible material with nonmetallic attachment screws, unless the switch mounting strap or yoke is nonmetallic or the circuit is protected by a ground-fault circuit interrupter.</i> <i>Exception No. 2 to (B): Listed kits or listed assemblies shall not be required to be connected to an equipment grounding conductor if all of the following conditions are met:</i> <i>(1) The device is provided with a nonmetallic faceplate that cannot be installed on any other type of device.</i> <i>(2) The device does not have mounting means to accept other configurations of faceplates.</i> <i>(3) The device is equipped with a nonmetallic yoke, and</i> <i>(4) All parts of the device that are accessible after installation of the faceplate are manufactured of nonmetallic materials.</i> <i>Exception No. 3 to (B): A snap switch with integral nonmetallic enclosure complying with 300.15(E) shall be permitted without a connection to an equipment grounding conductor.</i></p> | <p>Where metal wall plates can be used, the snap switch has to be grounded to the electrical grounding system. Exception No. 1 to (B) requires that GFCI protection of metal mounting straps of switches where metal faceplates can be touched by persons within reach of grounded surfaces. Exception No. 2 to (B) requires a faceplate that cannot be interchangeable with standard-mount types. Exception No. 3 to (B) indicates that boxless switches with enclosures made of plastic inherently do not require faceplates (metallic or non-metallic) so there is no need for an equipment ground.</p> |  <p>HBL1221W</p> | <p>×</p> | <p>×</p> |
| <p>406.13 Tamper Resistant Receptacles in Guest Rooms and Guest Suites</p> | <p>406.13 Tamper-Resistant Receptacles in Guest Rooms and Guest Suites. All nonlocking-type, 125-volt, 15- and 20-ampere receptacles located in guest rooms and guest suites shall be listed tamper-resistant receptacles.</p> | <p>All non-locking-type (including GFCI receptacles), 125-volt, 15- and 20-ampere receptacles located in guest rooms and guest suites must be tamper-resistant.</p> |  <p>BR20ITR</p> | <p>×</p> | <p>×</p> |
| <p>406.14 Tamper-Resistant Receptacles in Child Care Facilities</p> | <p>In all child care facilities, all nonlocking-type, 125-volt, 15- and 20- ampere receptacles shall be listed tamper-resistant receptacles.</p> | <p>The 2011 code defines child care facility in section 406.2 as a building or structure, or portion thereof, for educational, supervisory, or personal care services for more than four children 7 years old or less. This should include any dedicated "playland" portions of restaurants, and to playrooms and day-care rooms of healthcare facilities as well per 517.18(C).</p> |  <p>BR15TR</p> | <p>×</p> | <p>×</p> |






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| 517.13 (B)(1) Grounding of Receptacles and Fixed Electrical Equipment in Patient Care Areas - (B) Insulated Equipment Grounding Conductor - (1) General; Exceptions | 517.13 Grounding of Receptacles and Fixed Electrical Equipment in Patient Care Areas. Wiring in patient care areas shall comply with 517.13(A) and (B). (A) Wiring Methods. All branch circuits serving patient care areas shall be provided with an effective ground-fault current path by installation in a metal raceway system, or a cable having a metallic armor or sheath assembly. The metal raceway system, or metallic cable armor, or sheath assembly shall itself qualify as an equipment grounding conductor in accordance with 250.118. (B) Insulated Equipment Grounding Conductor. (1) General. The following shall be directly connected to an insulated copper equipment grounding conductor that is installed with the branch circuit conductors in the wiring methods as provided in 517.13(A). (1) <u>The grounding terminals of all receptacles.</u> (2) <u>Metal boxes and enclosures containing receptacles.</u> (3) <u>All non-current-carrying conductive surfaces of fixed electrical equipment likely to become energized that are subject to personal contact, operating at over 100 volts.</u> <i>Exception: An insulated equipment bonding jumper that directly connects to the equipment grounding conductor is permitted to connect the box and receptacle(s) to the equipment grounding conductor.</i> <i>Exception No. 1 to (3): Metal faceplates shall be permitted to be connected to the equipment grounding conductor by means of a metal mounting screw(s) securing the faceplate to a grounded outlet box or grounded wiring device.</i> <i>Exception No. 2 to (3): Luminaires more than 2.3 m (7½ ft) above the floor and switches located outside of the patient care vicinity shall be permitted to be connected to an equipment grounding return path complying with 517.13(A).</i> | The following must be connected to an insulated grounding conductor installed with the branch circuit; 1) grounding terminal of receptacles, 2) metal boxes and enclosures having receptacles, 3) all conductive surfaces of fixed equipment operating above 100V. Exception: equipment bonding jumper that connects the grounding conductor to the box and receptacle. Exception No. 1 to (3); metal faceplates can be connected to the grounding conductor through the mounting screws. Exemption No. 2 to (3); exempts luminaires mounted 7.5 feet above the floor and switches located outside the patient reach. |  GFR8200HLA GFR8300HLA GFR8200HLATR GFR8300HLATR | X | |
| 517.13 (B)(2) Grounding of Receptacles and Fixed Electrical Equipment in Patient Care Areas - Insulated Equipment Grounding Conductor - Sizing | 517.13 Grounding of Receptacles and Fixed Electrical Equipment in Patient Care Areas. Wiring in patient care areas shall comply with 517.13(A) and (B). (B) Insulated Equipment Grounding Conductor. (2) Sizing. Equipment grounding conductors and equipment bonding jumpers shall be sized in accordance with 250.122. | Grounding and bonding jumpers must be sized to Table 250.122. | | X | |
| 517.16 Receptacles w/Insulated Ground Term. Not Allowed in Patient Care | 517.16 Receptacles with Insulated Grounding Terminals. Receptacles with insulated grounding terminals, as described in 250.146(D), shall not be permitted. | Isolated ground receptacles, which are identified by an orange triangle located on the face of the receptacle, must not be used in patient care areas. Because the equipment grounding terminal is isolated it does not provide the functional benefit of the multiple grounding paths specified in 517.13. However, Isolated ground receptacles continue to be permitted in areas of health care facilities other than patient care areas. |  IG8300 | X | |
| 517.18(A) General Care Areas - (A) Patient Bed Locations | 517.18 General Care Areas. (A) Patient Bed Location. Each patient bed location shall be supplied by at least two branch circuits, one from the emergency system and one from the normal system. All branch circuits from the normal system shall originate in the same panelboard. <u>The branch circuit serving patient bed locations shall not be part of a multi-wire branch circuit.</u> <i>Exception No. 1: Branch circuits serving only special purpose outlets or receptacles, such as portable X-ray outlets, shall not be required to be served from the same distribution panel or panels.</i> <i>Exception No. 2: Requirements of 517.18(A) shall not apply to patient bed locations in clinics, medical and dental offices, and outpatient facilities; psychiatric, substance abuse, and rehabilitation hospitals; sleeping rooms of nursing homes and limited care facilities meeting the requirements of 517.10(B)(2).</i> <i>Exception No. 3: A general care patient bed location served from two separate transfer switches on the emergency system shall not be required to have circuits from the normal system.</i> | Branch circuits serving patient bed locations can not be multi-wired branch circuits. | | X | |

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| 517.18(B) General Care Areas - (B) Patient Bed Locations Receptacles | 517.18 General Care Areas. (B) Patient Bed Location Receptacles. Each patient bed location shall be provided with a minimum of four receptacles. They shall be permitted to be of the single, duplex, <u>or quadruplex type, or any combination of the three.</u> All receptacles, whether four or more, shall be listed "hospital grade" and so identified. The grounding terminal of each receptacle shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table 250.122. <i>Exception No. 1: The requirements of 517.18(B) shall not apply to psychiatric, substance abuse, and rehabilitation hospitals meeting the requirements of 517.10(B)(2).</i> <i>Exception No. 2: Psychiatric security rooms shall not be required to have receptacle outlets installed in the room.</i> <i>Informational Note: It is not intended that there be a total, immediate replacement of existing non-hospital grade receptacles. It is intended, however, that non-hospital grade receptacles be replaced with hospital grade receptacles upon modification of use, renovation, or as existing receptacles need replacement.</i> | At least four hospital grade receptacles have to be installed in patient care locations; four single receptacles, two duplex receptacles, one 4-PLEX or any combination of the three. Hospital grade receptacles will have a green dot on the face of the device. |  HBL415H, HBL8200 | X | |
| 517.18(C) General Care Areas - (C) Pediatric Locations | 517.18 General Care Areas. (C) Pediatric Locations. Receptacles located within the rooms, bathrooms, playrooms, activity rooms, and patient care areas of designated pediatric locations shall be listed tamper resistant or shall employ a listed tamper-resistant cover. | Tamper resistant receptacles are required in designated pediatric locations. |  GFR8200HLATR | X | |
| 517.19(A) Critical Care Areas - (A) Patient Bed Locations Branch Circuits | 517.19 Critical Care Areas. (B) Patient Bed Location Receptacles. (1) Minimum Number and Supply. Each patient bed location shall be provided with a minimum of six receptacles, at least one of which shall be connected to either of the following: (1) The normal system branch circuit required in 517.19(A) (2) An emergency system circuit supplied by a different transfer switch than the other receptacles at the same patient bed location | Branch circuits serving patient bed locations can not be multi-wired branch circuits which means each circuit has to have it's own neutral wire. Three wire circuits; two hots, one neutral and a ground cannot be used. | | X | |
| 517.19(B)(2) Critical Care Areas - (B) Patient Bed Location Receptacles - (2) Receptacle Requirements | 517.19 Critical Care Areas. (B) Patient Bed Location Receptacles. (2) Receptacle Requirements. The receptacles required in 517.19(B)(1) shall be permitted to be <u>single, duplex, or quadruplex type or any combination thereof.</u> All <u>receptacles shall</u> be listed "hospital grade" and <u>shall be</u> so identified. The grounding terminal of each receptacle shall be connected to the reference grounding point by means of an insulated copper equipment grounding conductor. | Each patient bed location must provide at least six receptacles and can be six single receptacles, three duplex receptacles, or one 4-PLEX receptacle with two single receptacles or one duplex receptacle or a any combination of the three. The receptacles must be hospital grade, hospital grade receptacles will have a green dot on the face of the device. |  HBL415H, HBL8200 | X | |
| 680.21 (C) Motors - GFCI Protection | 680.21 Motors. (C) GFCI Protection. Outlets supplying pool pump motors connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, <u>whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.</u> | Pool pump motors connected to single phase 120 volt through 240 volt, 15 or 20 amperes whether cord and plug connection or hard wired must be GFCI protected. |  GFM20 | X | X |
| 680.73 (E) Accessibility | 680.73 Accessibility. Hydromassage bathtub electrical equipment shall be accessible without damaging the building structure or building finish. <u>Where the hydromassage bathtub is cord- and plug-connected with the supply receptacle accessible only through a service access opening, the receptacle shall be installed so that its face is within direct view and not more than 300 mm (1 ft) of the opening.</u> | Hydromassage bath tubs that are cord and plug connected, the receptacle must be accessible to the access opening. The receptacle must be within one foot of the opening and facing out. |  GF15LA, GFTR15 | X | X |



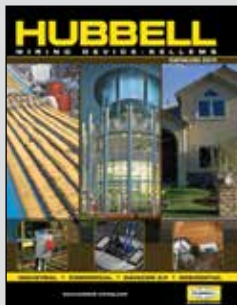
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