Exception No. 1: For other than isolated ground receptacles, an insulated equipment bonding jumper that directly connects to the equipment grounding conductor shall be permitted to connect the box and receptacle(s) to the equipment grounding conductor. Isolated ground receptacles shall be connected in accordance with 517.16.

Exception No. 2: Metal faceplates shall be connected to an effective ground-fault current path by means of a metal mounting screw(s) securing the faceplate to a metal yoke or strap of a receptacle or to a metal outlet box.

These requirements cover the second component of the equipment grounding method. An insulated copper EGC, either solid or stranded, sized in accordance with 250.122, must be installed with the branch-circuit conductors in a wiring method that meets the requirements of 517.13(A). The requirement to install an insulated EGC applies only to branch circuits. Feeders supplying the panelboards from which the patient care space branch circuits originate are not subject to the requirements of 517.13.

(2) Sizing. Equipment grounding conductors and equipment bonding jumpers shall be sized in accordance with 250.122.

517.14 Panelboard Bonding. The equipment grounding terminal buses of the normal and essential branch-circuit panelboards serving the same individual patient care vicinity shall be connected together with an insulated continuous copper conductor not smaller than 10 AWG. Where two or more panelboards serving the same individual patient care vicinity are served from separate transfer switches on the essential electrical system, the equipment grounding terminal buses of those panelboards shall be connected together with an insulated continuous copper conductor not smaller than 10 AWG. This conductor shall be permitted to be broken in order to terminate on the equipment grounding terminal bus in each panelboard.

Exception: The insulated continuous copper conductor not smaller than 10 AWG shall be permitted to be terminated on listed connections to aluminum or copper busbars not smaller than 6 mm thick × 50 mm wide (¼ in. thick × 2 in. wide) and of sufficient length to accommodate the number of terminations necessary for the bonding of the panelboards. The busbar shall be securely fastened and installed in an accessible location.

This requirement applies to multiple panelboards that might be supplied from the same system or from different systems serving the same individual patient care vicinity. The exception emulates requirements from Article 250 permitting the use of busbar as a common connection point for grounding and/or bonding conductors. The use of busbar installed in an accessible location facilitates inspection of these important bonding connections that are used to eliminate differences of potential on exposed surfaces of equipment supplied from different sources.

517.16 Use of Isolated Ground Receptacles. An isolated ground receptacle, if used, shall not defeat the purposes of the safety features of the grounding systems detailed in 517.13. [**99:**6.3.2.2.5(A)]

The EGC of isolated ground receptacles does not provide the functional benefit of the multiple equipment grounding paths specified in 517.13. For that reason, isolated-ground-type receptacles (Type IG) are not permitted to be installed in the patient care vicinity. They are permitted to be installed in patient care spaces outside the patient care vicinity. If isolated ground receptacles are installed in these spaces, the installation has to comply with 517.13(A) and (B), and an additional insulated EGC is required to be installed and connected to the receptacle equipment grounding terminal. The additional EGC is required to be identified by green insulation with one or more yellow stripes. The insulated EGC required by 517.13(B) is required to be identified by green insulation having no yellow stripes.

Type IG receptacles are identified by an orange triangle located on the face of the receptacle. Because they are not permitted in the patient care vicinity, it is not necessary for them to be additionally listed as hospital grade.

(A) Inside of a Patient Care Vicinity. An isolated ground receptacle shall not be installed within a patient care vicinity. [**99:**6.3.2.2.5(B)]

(B) Outside of a Patient Care Vicinity. Isolated ground receptacle(s) installed in patient care spaces outside of a patient care vicinity(s) shall comply with 517.16(B)(1) and (B)(2).

(1) The equipment grounding terminals of isolated ground receptacles installed in branch circuits for patient care spaces shall be connected to an insulated equipment grounding conductor in accordance with 250.146(D) installed in a wiring method described in 517.13(A).

The equipment grounding conductor connected to the equipment grounding terminals of isolated ground receptacles in patient care spaces shall be clearly identified along the equipment grounding conductor's entire length by green insulation with one or more yellow stripes.

(2) The insulated equipment grounding conductor required in 517.13(B)(1) shall be clearly identified along its entire length by green insulation, with no yellow stripes, and shall not be connected to the grounding terminals of isolated equipment ground receptacles but shall be connected to the box or enclosure indicated in 517.13(B)(1)(2) and to non–current-carrying conductive surfaces of fixed electrical equipment indicated in 517.13(B)(1)(3).

Informational Note No. 1: This type of installation is typically used where a reduction of electrical noise (electromagnetic interference) is necessary, and parallel grounding paths are to be avoided.

Informational Note No. 2: Care should be taken in specifying a system containing isolated ground receptacles, because the impedance of the effective ground-fault current path is dependent upon the equipment grounding conductor(s) and does not benefit from any conduit or building structure in parallel with the equipment grounding conductor.