a grounded circuit conductor shall not be connected to non–current-carrying metal parts of equipment on the load side of the service disconnecting means or on the load side of a separately derived system disconnecting means or the overcurrent devices for a separately derived system not having a main disconnecting means.

Exception No. 1: The frames of ranges, wall-mounted ovens, counter-mounted cooking units, and clothes dryers under the conditions permitted for existing installations by 250.140 shall be permitted to be connected to the grounded circuit conductor.

Exception No. 2: It shall be permissible to connect meter enclosures to the grounded circuit conductor on the load side of the service disconnect if all of the following conditions apply:

(1) Ground-fault protection of equipment is not installed.
(2) All meter enclosures are located immediately adjacent to the service disconnecting means.
(3) The size of the grounded circuit conductor is not smaller than the size specified in Table 250.122 for equipment grounding conductors.

Exception No. 3: Electrode-type boilers operating at over 1000 volts shall be grounded as required in 495.72(E)(1) and 495.74.

If the grounded circuit conductor is re-grounded on the load side of the service and the grounded conductor is disconnected at any point on the line side of the service, the EGC and all conductive parts connected to it would become energized. Under this condition, the potential to ground of any exposed metal parts could be raised to line voltage. This rise in potential on non-current-carrying conductive parts could result in arcing in concealed spaces and could pose a severe shock hazard, particularly if contact is made with metal piping or ductwork.

Even without an open grounded conductor, a connection between the grounded conductor and the EGC on the load side of the service places the EGC in a parallel circuit path with the grounded conductor. Exposed and concealed non-current-carrying metal parts could also be hazardous.

See also

250.30(A)(3) and **250.32(B),** which prohibit the creation of parallel paths for normal neutral current

Δ **250.144 Multiple Circuit Connections.** If equipment is required to be grounded and is supplied by more than one circuit containing an equipment grounding conductor, a means to terminate each equipment grounding conductor meeting the requirements of 250.8 shall be provided as specified in 250.134 and 250.138.

250.146 Connecting Receptacle Grounding Terminal to an Equipment Grounding Conductor. An equipment bonding jumper shall be used to connect the grounding terminal of a grounding-type receptacle to a metal box that is connected to an equipment grounding conductor, except as permitted in 250.146(A) through (D). The equipment bonding jumper shall be sized in accordance with Table 250.122.

Δ **(A) Surface-Mounted Box.** If a metal box is mounted on the surface, the direct metal-to-metal contact between the device yoke or strap to the box shall be permitted to provide the required effective ground-fault current path. At least one of the insulating washers shall be removed from receptacles that do not have a contact yoke or device to ensure direct metal-to-metal contact. Direct metal-to-metal contact for providing continuity applies to cover-mounted receptacles if the box and cover combination are listed as providing continuity between the box and the receptacle. A listed exposed work cover shall be permitted to be the grounding and bonding means under both of the following conditions:

(1) The device is attached to the cover with at least two fasteners that are permanent (such as a rivet) or have a thread-locking or screw- or nut-locking means.
(2) The cover mounting holes are located on a flat nonraised portion of the cover.

Section 250.146(A) permits the equipment bonding jumper to be omitted where the metal yoke of the device is in direct metal-to-metal contact with the metal device box and at least one of the fiber retention washers for the receptacle mounting screws is removed, as illustrated in Exhibit 250.47.

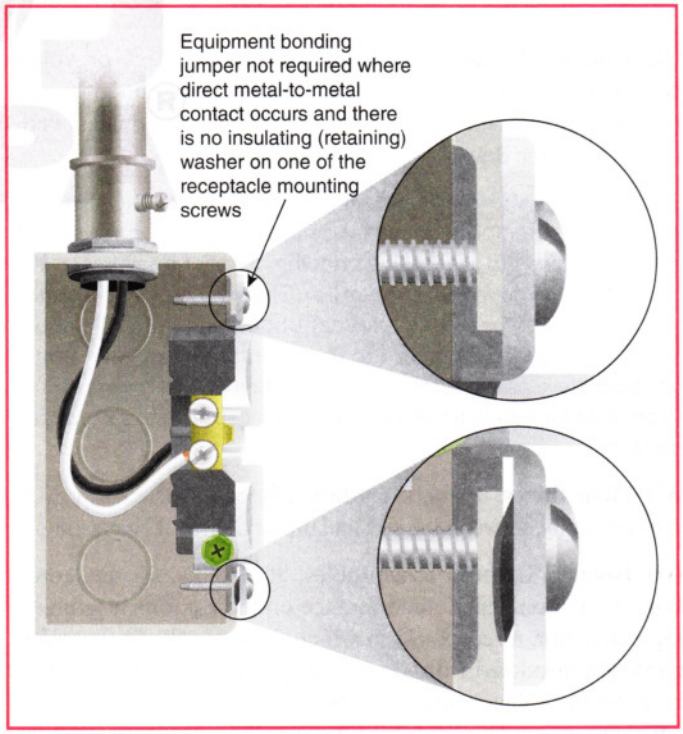

EXHIBIT 250.47 An example of a box-mounted receptacle attached to a surface box where an equipment bonding jumper from the grounded metal box to the receptacle is not required, provided at least one of the insulating washers is removed.