

- (1) Where a nongrounding receptacle is replaced with another nongrounding receptacle
- (2) Where aluminum branch-circuit conductors are directly terminated on a CO/ALR receptacle, installed as replacement

This requirement does not mandate receptacle replacement. It merely institutes a requirement for the receptacle if it is replaced. For example, an ordinary 15-ampere receptacle in a bedroom of a 10-year-old one-family dwelling would be required to be replaced with a tamper-resistant (TR) receptacle because tamper-resistant receptacles are required in a bedroom of a new home constructed under the current edition of the *NEC*®.

**(6) Weather-Resistant Receptacles.** Weather-resistant receptacles shall be provided where replacements are made at receptacle outlets that are required to be so protected elsewhere in this *Code*.

Without the requirement for weather-resistant (WR) receptacles to be installed at the time of replacement, ordinary receptacles might be installed and subject to the same failures as the receptacles they replaced.

**(7) Controlled Receptacles.** Automatically controlled receptacles shall be replaced with equivalently controlled receptacles. If automatic control is no longer required, the receptacle and any associated receptacles marked in accordance with 406.3(F) shall be replaced with a receptacle and faceplate not marked in accordance with 406.3(F).

**N (8) Ground-Fault Protection of Equipment (GFPE).** Receptacles shall be provided with GFPE where replacements are made at receptacle outlets that are required to be so protected elsewhere in this *Code*.

**(E) Cord- and Plug-Connected Equipment.** The installation of grounding-type receptacles shall not be used as a requirement that all cord- and plug-connected equipment be of the grounded type.

Informational Note: See 250.114 for types of cord- and plug-connected equipment to be grounded.

**(F) Noninterchangeable Types.** Receptacles connected to circuits that have different voltages, frequencies, or types of current (ac or dc) on the same premises shall be of such design that the attachment plugs used on these circuits are not interchangeable.

**N (G) Protection of Floor Receptacles.** Protection for floor receptacles shall be in accordance with the following:

- (1) Physical protection of floor receptacles shall allow floor-cleaning equipment to be operated without damage to receptacles.
- (2) All 125-volt, single-phase, 15- and 20-ampere floor receptacles installed in food courts and waiting spaces of passenger transportation facilities where food or drinks are allowed shall be GFCI protected.

**406.5 Receptacle Mounting.** Receptacles shall be mounted in identified boxes or assemblies. The boxes or assemblies

shall be securely fastened in place unless otherwise permitted elsewhere in this *Code*. Screws used for the purpose of attaching receptacles to a box shall be of the type provided with a listed receptacle, or shall be machine screws having 32 threads per inch or part of listed assemblies or systems, in accordance with the manufacturer's instructions.

Receptacles in pendant boxes are permitted if the box is supported from the flexible cord in accordance with 314.23(H)(1). A pendant box that is properly suspended is not required to be securely fastened in place.

**(A) Boxes That Are Set Back.** Receptacles mounted in boxes that are set back from the finished surface as permitted in 314.20 shall be installed such that the mounting yoke or strap of the receptacle is held rigidly at the finished surface.

**(B) Boxes That Are Flush.** Receptacles mounted in boxes that are flush with the finished surface or project therefrom shall be installed such that the mounting yoke or strap of the receptacle is held rigidly against the box or box cover.

Sections 406.5(A) through (C) allow attachment plugs to be inserted or removed without moving the receptacle. Restricting movement of the receptacle helps to maintain effective grounding continuity for contact devices or receptacle yokes. The proper installation of receptacles helps ensure that attachment plugs can be fully inserted, which provides a better contact.

#### See also

**314.23(B) or (C),** each of which requires that an outlet box used to enclose a receptacle be rigidly and securely supported  
**314.20** for more information on mounting outlet boxes with the proper setback

**(C) Receptacles Mounted on Covers.** Receptacles mounted to and supported by a cover shall be held rigidly against the cover by more than one screw or shall be a device assembly or box cover listed and identified for securing by a single screw.

Receptacles mounted on raised covers, such as the receptacle illustrated in Exhibit 406.1, are not permitted to be secured by a single screw unless the device is listed and identified for that method.

**(D) Position of Receptacle Faces.** After installation, receptacle faces shall be flush with or project from faceplates of insulating material and shall project a minimum of 0.4 mm (0.015 in.) from metal faceplates.

Requiring receptacles to project from metal faceplates prevents faults between the blades of attachment plugs and metal faceplates. Proper faceplate mounting ensures that attachment plugs can be fully inserted, which provides a better contact. The *NEC* does not specify the position (grounding blade up or down) of a common vertically mounted 15- or 20-ampere duplex receptacle. Although many drawings in this handbook show the slots for grounding blades up, the receptacle may be installed with the slots for blades down. Receptacles can also be installed horizontally as well as vertically.