

**(3) Short Radius Conduit Bodies.** Conduit bodies such as capped elbows and service-entrance elbows that enclose conductors 6 AWG or smaller, and are only intended to enable the installation of the raceway and the contained conductors, shall not contain splices, taps, or devices and shall be of an approved size to provide free space for all conductors enclosed in the conduit body.

**314.17 Conductors and Cables Entering Boxes, Conduit Bodies, or Fittings.** Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion. Conductors and cables shall comply with 314.17(A) through (C).

**(A) Openings to Be Closed.** Openings through which conductors enter shall be closed in an approved manner.

**(B) Boxes and Conduit Bodies.** The installation of the conductors and cables in boxes and conduit bodies shall comply with 314.17(B)(1) through (B)(4).

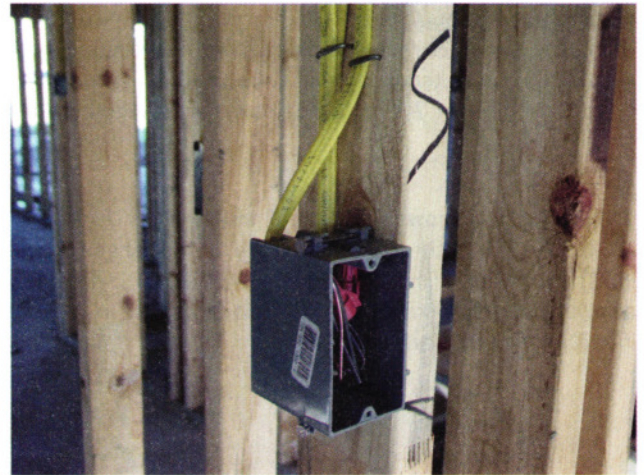
**(1) Conductors Entering Through Individual Holes or Through Flexible Tubing.** For messenger-supported wiring, open wiring on insulators, or concealed knob-and-tube wiring, the conductors shall enter the box through individual holes. In installations where metal boxes or conduit bodies are used with conductors unprotected by flexible tubing, the individual openings shall be provided with insulating bushings. Where flexible tubing is used to enclose the conductors, the tubing shall extend from the last insulating support to not less than 6 mm (¼ in.) inside the box or conduit body and 6 mm (¼ in.) beyond the end of any cable clamp. The wiring method shall be secured to the box or conduit body.

**(2) Cables Entering Through Cable Clamps.** Where cable assemblies with nonmetallic sheaths are used, the sheath shall extend not less than 6 mm (¼ in.) inside the box and 6 mm (¼ in.) beyond the end of any cable clamp. Except as covered in 300.15(C), the wiring method shall be secured to the box or conduit body.

*Exception: Where nonmetallic-sheathed cable is used with single gang nonmetallic boxes not larger than a nominal size 57 mm × 100 mm (2¼ in. × 4 in.) mounted in walls or ceilings, and where the cable is fastened within 200 mm (8 in.) of the box measured along the sheath and where the sheath extends through a cable knockout not less than 6 mm (¼ in.), securing the cable to the box shall not be required. Multiple cable entries shall be permitted in a single cable knockout opening.*

Exhibit 314.5 is an example of an installation that complies with 314.17(B)(2), Exception.

**(3) Conductors and Cables Entering Through Raceways.** Where the raceway is complete between boxes, conduit bodies, or both and encloses individual conductors or nonmetallic cable assemblies or both, the conductors or cable assemblies shall not be required to be additionally secured. Where raceways enclose cable assemblies as covered in 300.15(C), the cable



**EXHIBIT 314.5** Installation of a single gang outlet with cables securely fastened within 8 inches of the box. (Courtesy of the International Association of Electrical Inspectors)

assembly shall not be required to be additionally secured within the box or conduit body.

**(4) Temperature Limitation.** Nonmetallic boxes and conduit bodies shall be suitable for the lowest temperature-rated conductor entering the box or conduit body.

**(C) Conductors 4 AWG or Larger.** Installation shall comply with 300.4(G).

Informational Note: See 110.12(A) for requirements on closing unused cable and raceway knockout openings.

**314.19 Boxes Enclosing Flush Devices or Flush Equipment.** Boxes used to enclose flush devices or flush equipment shall be of such design that the devices or equipment will be completely enclosed on the back and sides, and substantial support for the devices or equipment will be provided. Screws for supporting the box shall not also be used to attach a device or equipment.

**314.20 Flush-Mounted Installations.** Installations within or behind a surface of concrete, tile, gypsum, plaster, or other noncombustible material, including boxes employing a flush-type cover or faceplate, shall be made so that the front edge of the box, plaster ring, extension ring, or listed extender will not be set back of the finished surface more than 6 mm (¼ in.).

Installations within a surface of wood or other combustible surface material, boxes, plaster rings, extension rings, or listed extenders shall extend to the finished surface or project therefrom.

This section applies only to the construction of the finished surface of the wall or ceiling and not to its structure or subsurface. It is important that the final finished surface, such as a tiled kitchen backsplash, be considered before outlet boxes are installed. This often requires the cooperation of other construction trades (dry-wall installers, plasterers, and carpenters) and the building designers.