

## Introduction to Article 517—Health Care Facilities

This article covers electrical wiring in health care facilities such as hospitals, nursing homes, limited care and supervisory care facilities, clinics, medical and dental offices, and ambulatory care facilities that provide services to human beings. The requirements of Article 517 do not apply to business offices or waiting rooms, or to animal veterinary facilities. Many of these rules are outside of the scope of this material, however some of the topics we cover include the following:

- ▶ Wiring Methods
- ▶ Equipment Grounding Conductor for Receptacles and Fixed Electrical Equipment in Patient Care Spaces
- ▶ Isolated Ground Receptacles

Article 517 consists of seven parts:

- ▶ Part I. General
- ▶ Part II. Wiring and Protection
- ▶ Part III. Essential Electrical Systems (not covered)
- ▶ Part IV. Inhalation Anesthetizing Locations (not covered)
- ▶ Part V. Diagnostic Imaging and Treatment Equipment (not covered)
- ▶ Part VI. Communications, Signaling Systems, Data Systems, Fire Alarm Systems, and Systems Less than 120V, Nominal (not covered)
- ▶ Part VII. Isolated Power Systems (not covered)

### 517.13 Equipment Grounding Conductor for Receptacles and Fixed Electrical Equipment in Patient Care Spaces

Wiring serving patient care spaces, including homeruns, must comply with the requirements of 517.13(A) and (B):

**According to Article 100**, a “Patient Care Space Category” is any space of a health care facility where patients are intended to be examined or treated. ▶[Figure 517-7](#)

**Note 2:** Business offices, corridors, lounges, day rooms, dining rooms, or similar areas are not classified as patient care spaces.

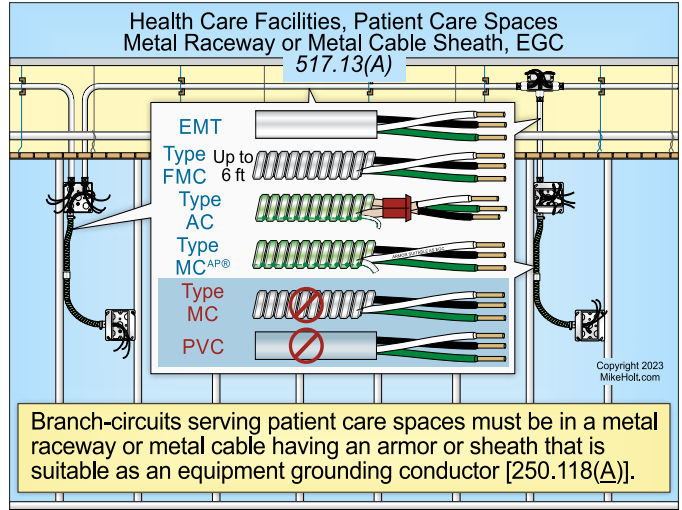
*Ex: Luminaires and switches outside the patient care vicinity must be installed in a 517.13(A) or (B) wiring method.* ▶[Figure 517-8](#)

**According to Article 100**, a “Patient Care Vicinity” is a space extending vertically to 7 ft 6 in. above the floor and 6 ft horizontally beyond the patient bed, chair, table, treadmill, or other device that supports the patient during examination and treatment. ▶[Figure 517-9](#)

**(A) Wiring Methods—Equipment Grounding Conductor.** Branch-circuits serving patient care spaces must be in a metal raceway or metal cable having an armor or sheath that is suitable as an equipment grounding conductor in accordance with 250.118(A). ▶[Figure 517-10](#)



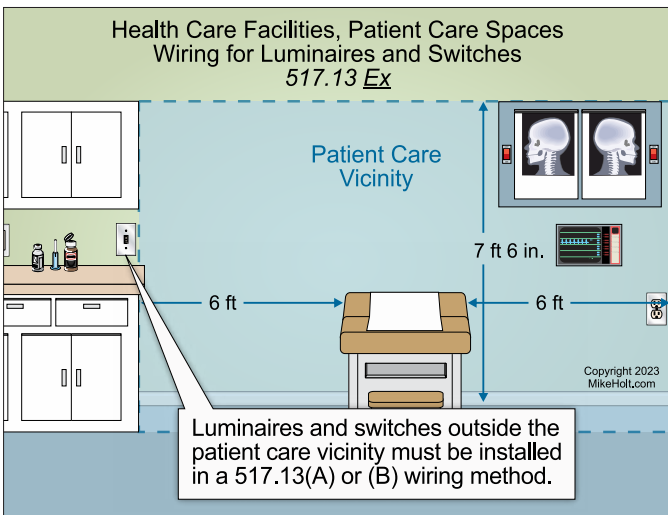
► Figure 517-7



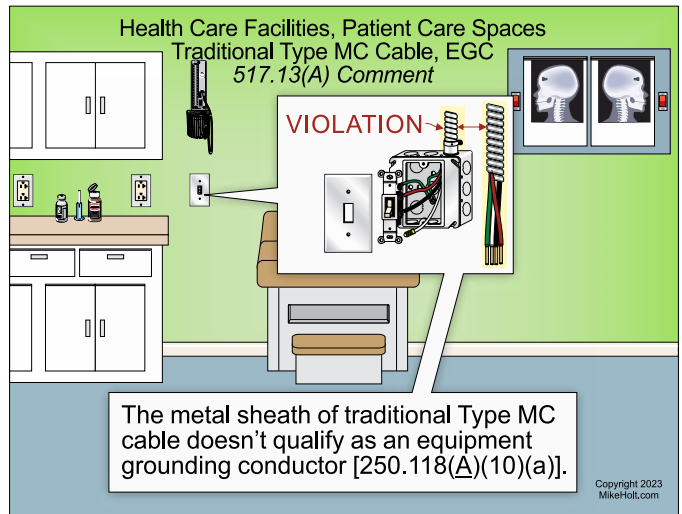
► Figure 517-10

**Author's Comment:**

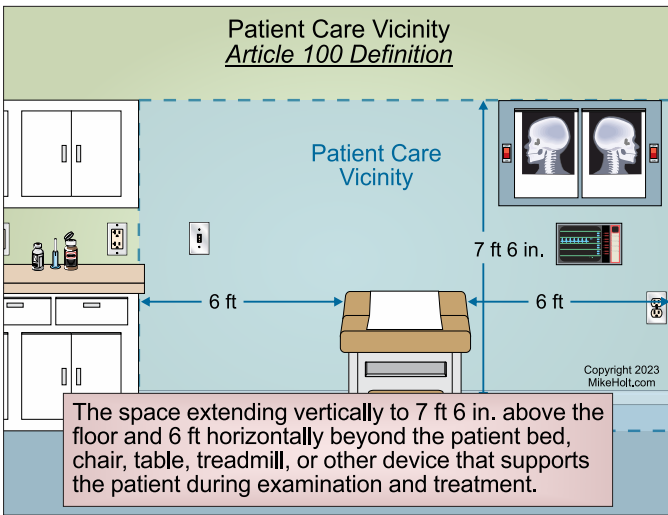
- The metal sheath of traditional Type MC interlocked cable does not qualify as an equipment grounding conductor [250.118(A)(10)(a)]. Therefore, this wiring method cannot be used for circuits in patient care spaces. ► Figure 517-11



► Figure 517-8

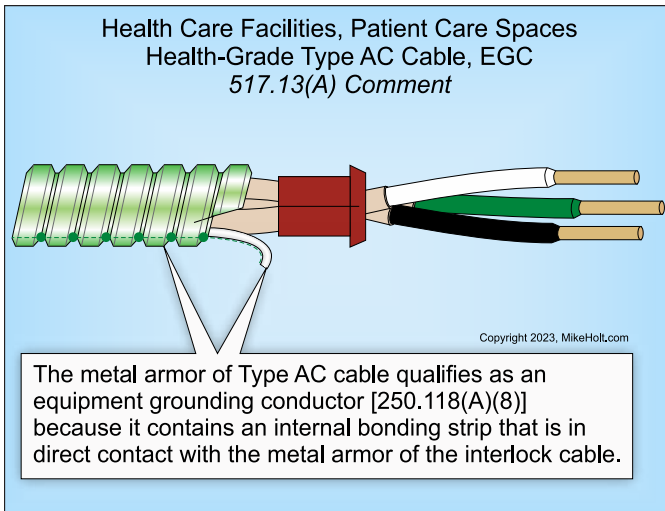


► Figure 517-11



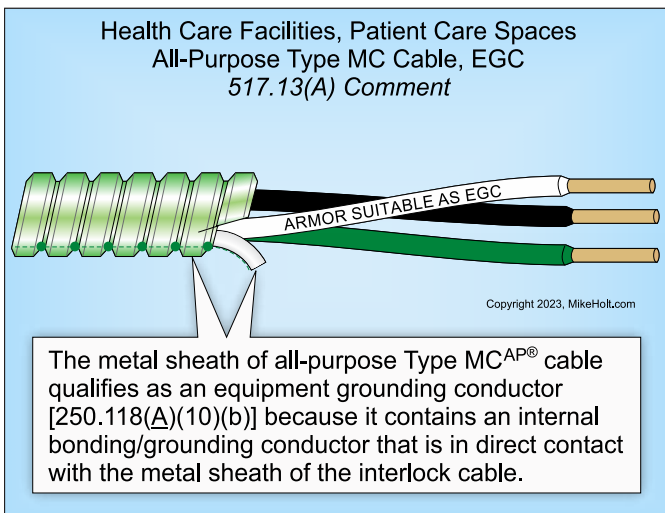
► Figure 517-9

- The metal armor of Type AC cable qualifies as an equipment grounding conductor [250.118(A)(8)] because it contains an internal bonding strip that is in direct contact with the metal armor of the interlock cable. ► Figure 517-12



▶Figure 517-12

- ▶ The metal sheath of all-purpose Type MCAP cable qualifies as an equipment grounding conductor [250.118(A)(10)(b)] because it contains an internal bonding/grounding conductor that is in direct contact with the metal sheath of the interlock cable. ▶Figure 517-13

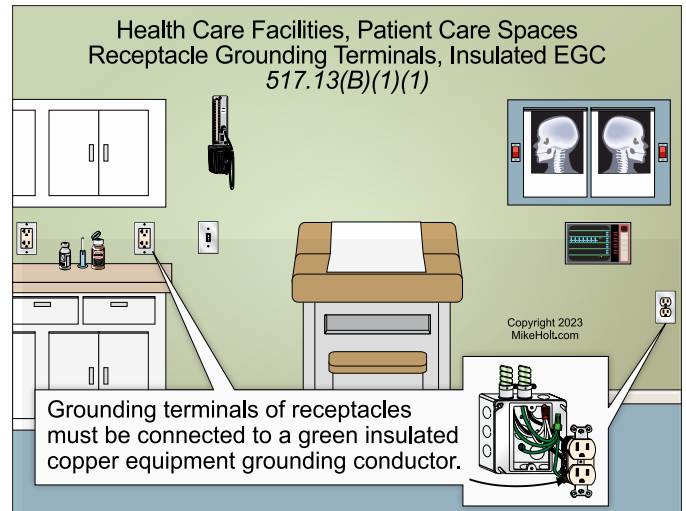


▶Figure 517-13

### (B) Wire-Type Equipment Grounding Conductor.

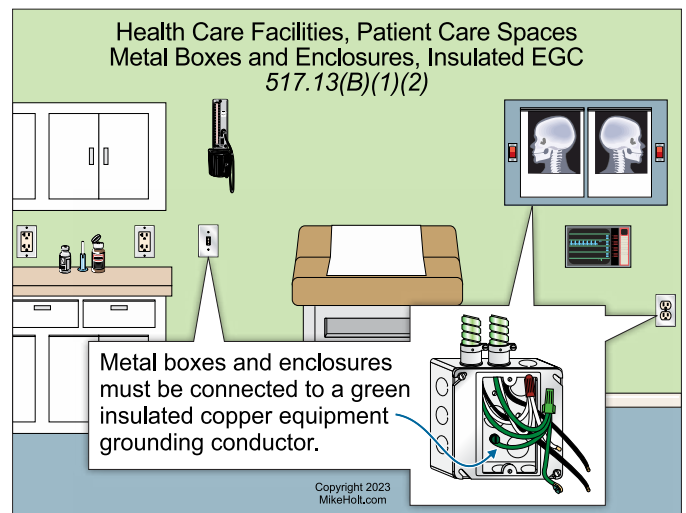
(1) **General.** An insulated copper equipment grounding conductor with green insulation along its entire length, installed within a suitable wiring method as required in 517.13(A), must be connected to the following:

- (1) Grounding terminals of receptacles, other than isolated ground receptacles, must be connected to a green insulated copper equipment grounding conductor. ▶Figure 517-14



▶Figure 517-14

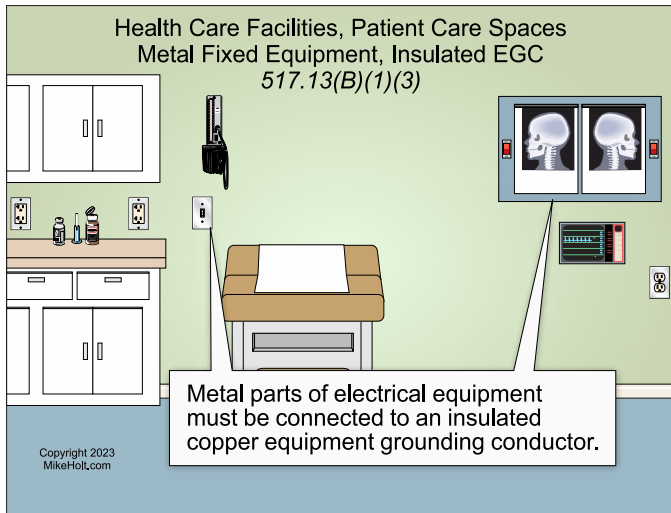
- (2) Metal boxes and enclosures must be connected to a green insulated copper equipment grounding conductor. ▶Figure 517-15



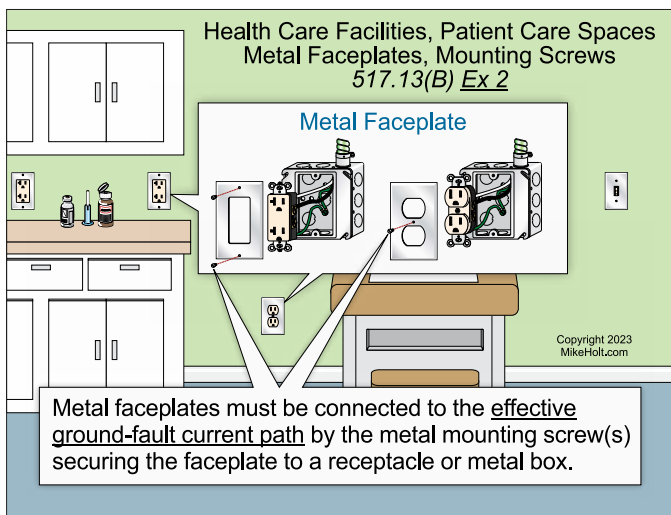
▶Figure 517-15

- (3) Metal parts of fixed electrical equipment must be connected to an insulated copper equipment grounding conductor. ▶Figure 517-16

*Ex 2: Metal faceplates must be connected to the effective ground-fault current path by the metal mounting screw(s) securing the faceplate to a receptacle or metal box. ▶Figure 517-17*



▶ Figure 517-16



▶ Figure 517-17

**Author's Comment:**

- ▶ Often referred to as redundancy, equipment grounding requirements in patient care spaces are based on the concept of two different types of equipment grounding conductors so if there is an installation error, the effective ground-fault current paths are not lost. One effective ground-fault current path is “mechanical” (the wiring method) and the other is of the “wire type.” Section 517.13(A) requires the wiring method to be a metal raceway or metal cable that qualifies as an equipment grounding conductor in accordance with 250.118(A)(8) and (10)(b), and Section 517.13(B) requires an insulated copper equipment grounding conductor of the wire type in accordance with 250.118(A)(1).

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