

Health Care Facilities
Instructor's Outline - 2011 NEC
(Prepared by Gaylord Poe)

1. **517.1 – Scope** – Human beings only, applicability not limited to single-function buildings.
2. **517.2 – Definitions** – General Review
3. **517.10 – Applicability** – Focus on the differences between A & B.
4. **517.11 – General Installation, Construction Criteria** – Good general information is in the FPN.
5. **517.12 – Wiring Methods** - Note that the rest of the NEC applies, except as modified. In other words, everything you need to know about wiring a Health Care Facility is not just found in 517.
6. **517.13 – Grounding (general rules) for Patient Care Areas** – Restate the definition of Patient Care Area. Note that 517.13(A) is for all branch circuits and that the additional rules in 517.13(B) are for receptacles and other fixed conductive equipment subject to personal contact. Note that *Exception No. 2 to (3)* is for light fixtures 7-½ ft. above the floor and for switches OUTSIDE of the patient vicinity – not all switches. Most switches in patient care areas ARE IN the patient vicinity. Also, *Exception No. 2 to (3)* doesn't “do away” with 517.13(A) requirements – only the insulated ground requirements found in (B). It should also be noted that patient care vicinity (in definitions) only comes into play in this exception.
7. **517.14 – Panelboard Bonding** – This applies when there are normal and essential branch circuit panelboards serving the same patient vicinity. It also provides for bonding emergency panelboards together when they are supplied off of different transfer switches and supply the same patient vicinity.
8. **517.16 – Isolated Ground Receptacles** – This section prohibits these receptacles in Patient Care Areas.
9. **517.17 – Ground-Fault Protection** – The “why” can be found in 517.17(C).
10. **517.18 – General Care Areas** – Review but note these rules are only for patient bed locations (see definition of Patient Bed Location in 517.2) and pediatric locations. They do not apply to all patient care areas.
11. **517.19 – Critical Care Areas** – Review but note these rules are only for patient bed locations (see definition of Patient Bed Location in 517.2). They do not apply to all patient care areas.

12. **517.20 – Wet Procedure Locations** – GFI general rules.
13. **517.21** – GFCI rules (or lack of) for critical care patient rooms.
14. **517.25 – Scope of Essential Electrical Systems** – Note that “essential” is all encompassing in describing “emergency”, “critical”, “life safety”, and “equipment” systems.
15. **517.30 through 517.34 - Essential Electrical Systems for Hospitals** – Review but stress that these sections are only for hospitals (see definition of “hospital”). Carefully review 517.30(C)(3).
16. **517.40 through 517.44 – Essential Electrical Systems for Nursing Homes and Limited Care Facilities** – Review but stress that these sections are only for Nursing Homes and Limited Care Facilities (see definitions). Spend some time on 517.40 A exception and 517.44 B.
17. **517.45 - Essential Electrical Systems for Other Health Care Facilities** – Note that when you see references in B, C, and D to 517.30 through 517.35 that 517.30 (C) (3) can require expensive emergency system wiring methods when dentist offices, clinics, etc. have generators.
18. **517.60 through 517.64 – Anesthetizing Locations** - Provide brief overview but stress that flammable agents used in ORs is really a thing of the past. Most of these locations fall under 517.61(C). Also note that all anesthetizing locations are patient care areas – critical care. Also key on the word “inhalation” where 517 Part IV begins.
19. **517.71 through 517.78 – X-Ray Equipment** - Provide brief overview but stress that in reality, the local ESI typically does not inspect the actual equipment, just the line side connection of it. Liability for judging diagnostic equipment (other than proper sizing, grounding and labeling) is tremendous...plus the equipment is frequently “messed with” after inspection.
20. **517.80 Low Voltage Wiring** – For patient care areas the operative word is “equivalent”. This means metal raceways or metal cables qualifying as equipment grounding conductors are required. (*517.13(B) – the “redundant ground rule” - is for systems operating at over 100V and subject to personal contact.*) Note that this rule DOES NOT apply to secondary conductors of transformer-powered communications or signaling systems unless raceways are otherwise specified by Chapter 7. In other than patient care areas the more restrictive rules of 517.80 do not apply (see 517.81).
21. **517.160 – Isolated Systems** – Provide a brief overview and focus what “isolated” really means in 120V power circuits.