

## NESC Quick Reference

**CAVEAT: This reference was prepared by Oregon Public Utility Commission Staff for educational purposes related to commonly found NESC violations. It is not an official document of the NESC or of the Oregon PUC. This reference is not exhaustive and does not cover inter-related NESC rules. Anyone using this material needs to refer to Oregon PUC regulations, OARs, and the NESC in its entirety.**

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### Grounds/Bonds – Section 9

General requirements – covers methods of protective grounding of supply and communication conductors and equipment. Similar rules requiring grounding occur in other parts of the Code.

1. At transformers – multiple grounded system, Rule 96C, page 32
2. Four grounds per mile – multiple grounded system, Rule 96C, page 32
3. Messenger grounding 4/8 per mile, Rule 92C1, page 23. Common neutral grounding on same structure, Rule 92C3, page 23.
4. Guarding and protection, Rule 93D, pages 26 – 27. Substantially attached, least exposure, Rule 93D4, pages 26 – 27.
5. Depth of driven rods, Rule 94B2, pages 28 – 29.
6. Separate grounds (for arresters, etc.), Rule 97, pages 32 – 33.

7. Grounds for equipment, guys, and messengers, Rule 215C, pages 75 – 77.
8. Separate ground electrodes at same building or structure must be bonded together. Rule 99C, page 34.
9. Exposed UG metallic supply and communication apparatus should be bonded together if less than 6 feet apart, Rule 384C, page 258.

### Part 2. Categories for Overhead

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### Clearances – Section 23

1. Vertical clearance above ground, Rule 232B, page 91 – 92, Table 232-1, pages 94 – 100.
2. Between conductors on different supports, Rule 233, pages 105 – 116.
3. Conductors from supporting structure, Rule 235E, pages 151 – 152.
4. Conductors from other structures, Rule 234B, pages 117 – 118.
5. Conductors from buildings and signs, Rule 234C, pages 118 – 120; and Table 234-1, pages 130 – 137, Figures 234-1(a,b,c) 234-2, 234-3, 234-4 (a,b), 234-5, pages 125 – 129.
6. Three-inch surface clearance, Rule 234C3c, page 119.
7. Roof and window clearance, Rule 234C3d, page 119 – 120.
8. Forty-inch separation power supply to communication, Rule 235C, pages 148 - 151, Table 235-5, pages 161 – 164. (Note: see footnote 5, for reduced clearance to 230E1 and 230C1, neutral with bonds and 230F1b, fiber optic cable)
9. Communication worker safety zone, Rule 235C4, page 151.
10. Services: Rule 235C1, Exception 3, service drop to structure being served (w/conditions), same structures (1 foot), page 148, and from different structures (2 feet), Table 233-1, page 113.
11. Between conductors, vertical, same supporting structure, Rule 235C, pages 148 – 151.

- a. Midspan sag, Rule 235C2b (1) (a) (75 percent of structure clearance), page 149.
  - b. Conductors not below communication attachment line of sight, Rule 235C2b(3). page 150.
  - c. Between communications conductors (12"/4") Rule 235H, page 153.
12. Between conductors; horizontal, same supporting structure, Rule 235B, pages 146 – 148, any direction, Rule 235E, pages 151 – 152, Table 235-7, page 170 – 171.
  13. Climbing space, Rule 236, pages 171 – 173. See also Rule 213, p74 (access), Rule 237, p176 (working space), and Rule 217A4b, p79 (obstructions, including vines).
  14. Vertical clearance between certain supply equipment (transformers, etc.) and communication facilities, Rule 238, page 177 – 178.
  15. Equipment above ground, Rule 232B3, page 92, Table 232-2, pages 101 – 103.
  16. Drip loops on pole, Rule 238D, page 177.
  17. Structure to streets, hydrants, railroad, Rule 231, page 91.

#### Guys

1. Insulated, Rule 279, pages 230 – 231.
2. Grounded, Rule 215C2, page 76.
3. Markers, Rule 217C, page 79.

#### Miscellaneous

Administrative authority – existing installations, safety modifications, Rule 013B, page 4.

Crossarm – strength and bracing, Rule 261D, pages 217 – 218.

Inspections and tests of lines and equipment, defects recorded, and prompt repairs – In service/ out of service/abandoned/new. Rule 121, page 43; also see Rule 214, pages 74 – 75; underground lines, Rule 313, pages 234 – 235.

Electrical field – strength under lines, Rule 232C1c. page 92 – 93.

Joint use of poles – Rule 222, pages 82 (see also Rule 220, pages 80 – 81).

Maintenance – Rule 012, page 4.

Employers – Must train, set procedures, and provide protection. Section 41, pages 262 – 268.

Employees – General Requirements – Section 42, pages 269 – 275. Employees must know rules – Rule 420A, page 269, employee qualifications, Rule 420B, page 269.

Additional requirements for communication employees, Section 43, pages 276 – 279.

Additional requirements for supply employees, Section 44, pages 280 – 293.

Risers – general, Rule 360A, page 255; grounding, Rule 314B, page 235, and 360C, page 255; placement on pole, Rule 362A, page 255.

Steps and stand-off brackets – on supporting structures, Rule 217A2, page 78.

Structures protected – against damage, Rule 217A1a, page 77 – 78.

Substation fences – Rule 110A, page 36. Grounds- see Rule 92E, pages 24 – 25.

Tags – pole identification, Rule 217A3, page 78.

Tree pruning/Vegetation management – Rule 218, page 79.

Tree attachment – of wires and services, Rule 217B, page 79.

Underground burial depth – Rule 352D2, Table 352-1, page 251.

Security – pad mounted equipment – Rule 381G, page 257.

Vertical conductors - through communication, Rule 239F, page 181.

Clearances for different voltages on same arm. Rule 235F, page 152 – 153.

Approach distances – to supply conductors/parts – for workers:

Communication – Rule 431, page 276-278;  
Supply – Rule 441A, pages 280 – 286.

Fiber optic cable – Definitions: supply/communication, Section 2, page 10; clearances, Rule 230F, pages 88 – 89; transitions from communications space to supply space (or the reverse) may occur only at pole, Rule 224A3c, page 83.