Stinger Pro™ Tools

Installation Standards - Grounding practice

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Source: NECA 1-2023, Standard for Good Workmanship in Electrical Construction, National Electrical Contractors Association. A voluntary workmanship standard, not code.

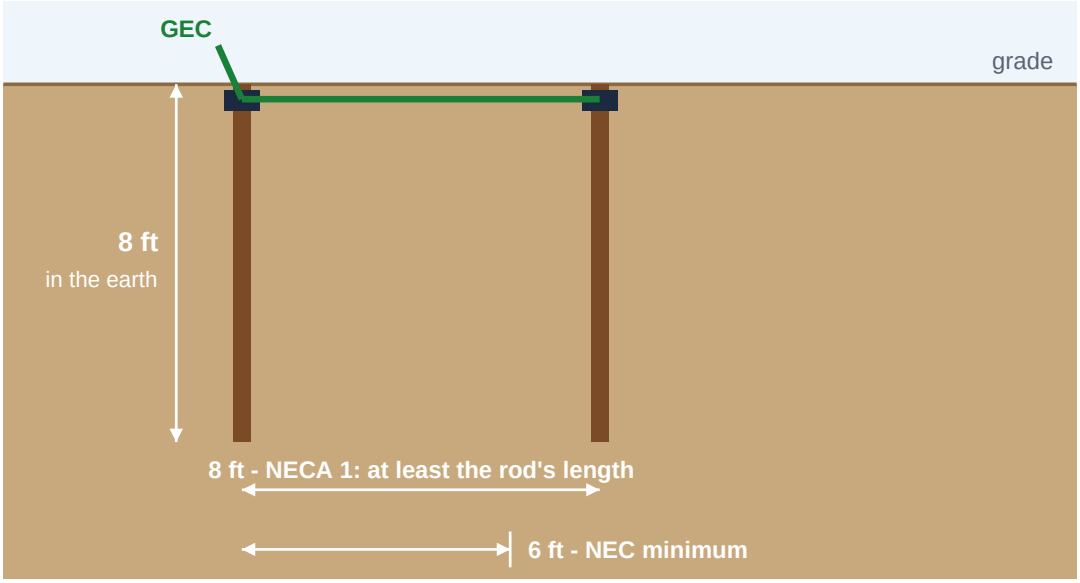
1. Grounding practice

- Metal raceways, wireways, tray and enclosures are kept electrically continuous along their whole length. [NECA 1 Sec 13, p. 30]
- Tighten grounding and bonding fittings with a calibrated torque tool; fittings on cable armor or sheath used for bonding are made up wrench tight. [NECA 1 Sec 13, p. 30]
- Where a fitting lands on a painted enclosure, remove the finish for bare metal-to-metal contact, then restore it. [NECA 1 Sec 13, p. 30]
- Bond a raceway to an enclosure with listed bonding locknuts, grounding bushings with jumpers, wedges, or a locknut each side of the wall, wrench tight. Concentric and eccentric knockouts need the bonding Article 250 calls for. [NECA 1 Sec 13, p. 30]
- Land a single conductor under each terminal; more only where its marking or instructions permit (no marking means one). [NECA 1 Sec 13, p. 30]
- Seal where grounding conductors pass through the foundation, with water stops where the wall is or may be below the water table. [NECA 1 Sec 13, p. 30]
- For a concrete-encased electrode, connect to the rebar before the pour, and keep vapor barriers and plastic sheeting out from under that footing. [NECA 1 Sec 13, p. 30]
- Drive rods and pipes so at least 8 ft is in the earth, below the frost line and the permanent moisture level. In rock, drive at no more than 45 degrees, or lay the rod in a trench at least 30 in deep. [NECA 1 Sec 13, p. 31] [250.53(A)(4), NFPA 70-2026]
- Keep electrodes at least 6 ft apart, and rods at least a rod's length apart; keep rings, rods and plates at least 18 in outside the roof drip line. [NECA 1 Sec 13, p. 31] [250.53(A)(3), NFPA 70-2026]
- A rod's top is flush with or below grade unless the connection is protected. Buried connections use connectors listed for direct burial; above-grade connections stay accessible, with inspection wells where they are called for. [NECA 1 Sec 13, p. 31]
- Connect to electrodes and building steel by exothermic weld, irreversible compression or listed connectors. [NECA 1 Sec 13, p. 31]
- Connect to a metal water pipe in the earth or within the first 5 ft inside the building, with a clamp listed for that pipe and that conductor (one for iron pipe may not suit copper tube), listed for more than one conductor where more are connected. [NECA 1 Sec 13, p. 32] [250.68(C)(1), NFPA 70-2026]

Two ground rods - drawing

Two ground rods

The whole rod in the earth; the second rod at least a rod's length away



Top of each rod at or below grade, or protected; buried clamps listed for direct burial.

NEC: 250.53(A)(3), a supplemental rod at least 6 ft from the other; 250.53(A)(4), at least 8 ft of the rod in contact with the soil [NFPA 70-2026].

NECA 1: Sec 13, p. 31 - rods spaced at least their own length apart, at least 8 ft of each in contact with the earth. The drawing is the app's own.