

POLES AND TEMPORARY CONSTRUCTION POWER

A. POLES

The minimum size of a wood pole used to support low voltage (below 1000 Volts) conductors in conformance with Article 225 of the California Electrical Code (CEC) for outdoor feeders and branch circuits shall be 6 inches by 6 inches (nominal) if square, or have a diameter of at least 5 inches if round, and be of sufficient length to maintain all required overhead clearances specified in CEC Section 225.18, but it shall not be less than 20 feet in length, except as required over track rails of railroads, it shall not be less than 28 feet. The lower end of the pole shall be embedded not less than 4 feet in the ground. An approved self-supporting pole of a material other than wood, if of equivalent strength, may be used. The minimum size of pole arrangement, type, and strength and construction requirement used to support high voltage (over 1000 V) conductors, and the required overhead line clearance and method of compliance shall be in accordance to the State of California Rules for Overhead Electric Line Construction, General Order No. 95 as well as applicable provisions of Article 399.

EXCEPTION: For low voltage outdoor feeder and branch circuit poles used to support temporary wiring in conformance with Article 590 of the CEC and located in areas accessible to pedestrians only, a 4-inch x 4-inch (nominal) wood pole, or equivalent, embedded not less than 4 feet in the ground, may be permitted.

B. PROVISIONS FOR TEMPORARY CONSTRUCTION SERVICES.

The following applies to the construction and installation of temporary construction electric services intended to provide temporary low voltage (below 1000 volts) power for general building construction purposes:

- 1. Service Equipment and Panelboards.** The service equipment including meter enclosures and panelboards shall be of the approved type and shall be identified for the purposes.
- 2. Wiring Methods.** Vertical raceways on construction temporary service (CTS) poles shall be minimum 3/4 inch in trade size supported at intervals not to exceed 3 feet, and shall be service-entrance cables or service-entrance conductor shall be installed in the following raceways:

Service-entrance Cables: (CEC Sec. 230.50)

Rigid Metal Conduit (RMC), Intermediate Metal Conduit (IMC), Electrical Metallic Tubing (EMT), Rigid Polyvinyl Chloride conduit (PVC) schedule 80, or Reinforced Thermosetting Resin Conduit (RTRC) marked as above ground (AG), type XW.

Service-entrance Conductors: (CEC Sec. 230.43)

RMC, IMC, EMT, Electric nonmetallic tubing, Wireways, Auxiliary gutters, PVC, Liquidtight Flexible Nonmetallic Conduit (LFNC), High Density Polyethylene Conduit (HDPE), and RTRC.

3. **Overcurrent Protection.** Panelboards shall have overcurrent protection in accordance with CEC Sec. 408.36.
4. **Grounding Electrode.** A No. 8 AWG minimum copper grounding electrode conductor shall be installed in a metallic raceway or cable armor connected to one or more grounding electrodes complying with Article 250 of the CEC.

Provide two or a combination of the following grounding electrodes, unless a single ground electrode provides less than or equal to 25 ohms of ground resistance:

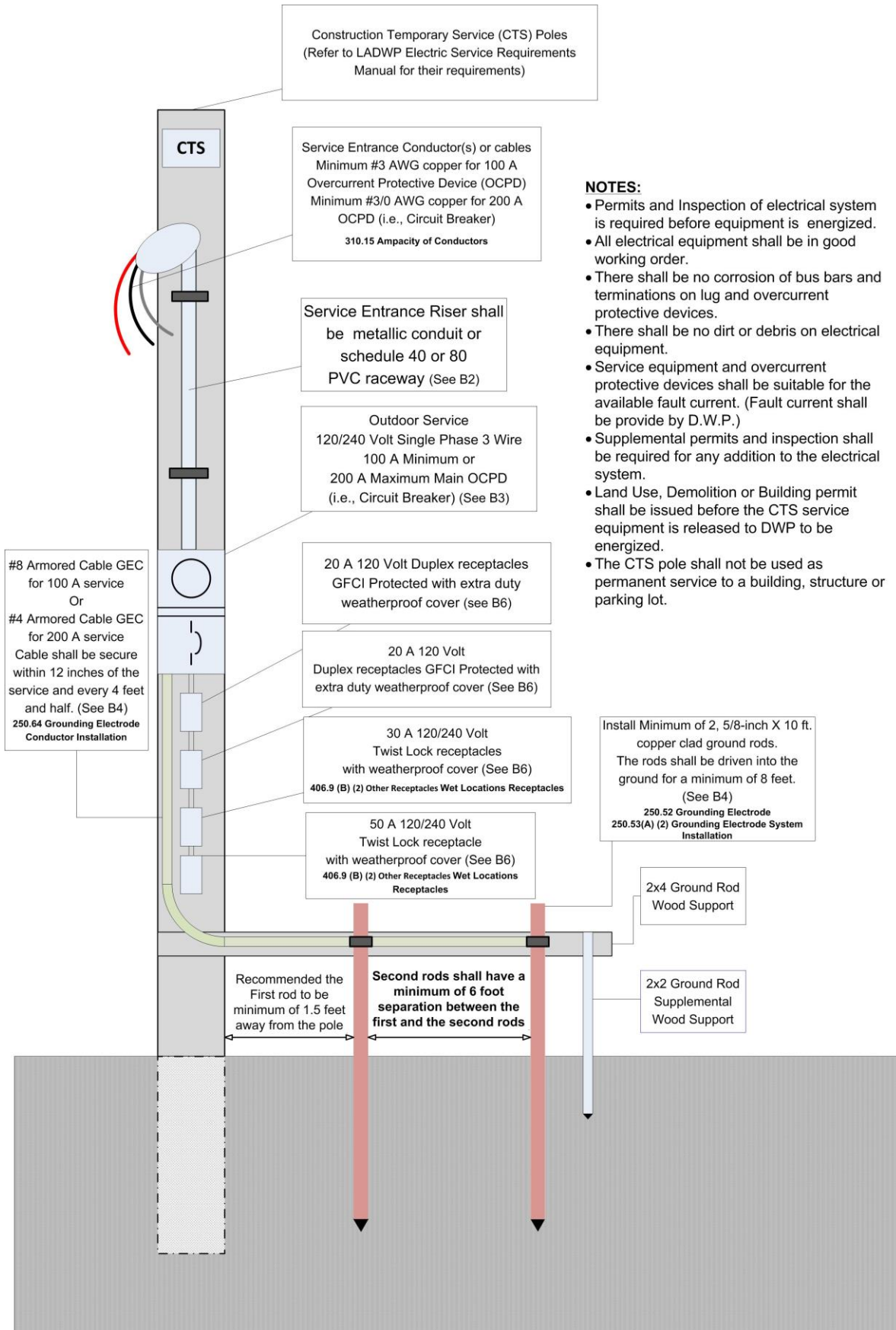
- a. 5/8-inch minimum diameter, stainless steel and copper or zinc coated steel.
- b. 3/4-inch minimum inside diameter galvanized rigid steel pipe or conduit.
- c. Other electrodes as permitted in Sec. 250.52 of CEC.

Unless permitted otherwise, the grounding electrode(s) shall be driven vertically at least 8 feet in contact with undisturbed soil from the pole. Multiple rod or pipe electrodes shall not be installed at less than 6 feet apart from one another.

5. **Bonding of Metallic Parts.** Metallic raceway(s) containing service conductors or grounding electrode conductor shall be bonded by one of the following methods: (CEC Secs. 250.90, 92)
 - a. Threaded couplings and threaded bosses on enclosures with joints made up wrench-tight where metallic raceways are involved.
 - b. Bonding-type locknuts and bushings, approved for the purpose.
 - c. Bonding jumpers used with approved grounding bushings. Bonding jumpers shall be used around concentric and eccentric knockouts.
 - d. Bonding jumpers used with approved ground lugs or ground terminals.
6. **Receptacle Outlets.** 120-volt, single-phase, 15, 20 and 30 ampere receptacle outlets shall be of grounding-type having ground-fault circuit interrupters for personnel protection (CEC Sec. 590.6(A)(1)). Receptacles of different voltage and current ratings shall not be interchangeable. The 15 and 20 ampere 125 and 250 volts receptacle outlets shall be of weather resistant type (marked WR) provided with listed weather resistance extra-duty type cover hood (CEC Secs. 590.4(D), 4086.9(B)(1)).
7. **Feeder Pole Grounding.** Where open-conductor wiring on feeder poles are used for power distribution, a continuous equipment grounding conductor sized per CEC Sec. 250.122 shall be run with the customer's overhead circuit conductors throughout the system. Individual equipment ground conductor must be triplexed (or intertwined) with the circuit conductors serving the same load or circuit, shall be continuous and attached per code (CEC Secs. 250.4(A)(5) and (B)(4), 250.134 and 250.148).
8. **Overhead Feeder and Branch Circuit Span.** Open individual conductors shall not be smaller than 10 AWG copper or 8 AWG aluminum for spans up to 50 feet in length, and 8 AWG copper or 6 AWG aluminum for longer span unless supported by messenger wire (CEC Sec. 225.6(A)).

9. **Feeder and Branch Circuit Open-Conductor.** Must be supported and spaced per CEC Secs. 225.12 and 225.14(A).
10. **Miscellaneous Pole Equipment.** No luminaires, signs, ropes or similar equipment shall be attached to the poles.
11. **Deteriorated Equipment.** Service equipment, panelboards, overcurrent protection devices, conductors, raceways, etc., that are deteriorated shall be replaced (CEC 110.11, and Los Angeles Electrical Code Sec. 93.0403).

C. Refer to Figure 1 for example of a CTS pole and other applicable information.



- NOTES:**
- Permits and Inspection of electrical system is required before equipment is energized.
 - All electrical equipment shall be in good working order.
 - There shall be no corrosion of bus bars and terminations on lug and overcurrent protective devices.
 - There shall be no dirt or debris on electrical equipment.
 - Service equipment and overcurrent protective devices shall be suitable for the available fault current. (Fault current shall be provide by D.W.P.)
 - Supplemental permits and inspection shall be required for any addition to the electrical system.
 - Land Use, Demolition or Building permit shall be issued before the CTS service equipment is released to DWP to be energized.
 - The CTS pole shall not be used as permanent service to a building, structure or parking lot.