



City of San Bruno

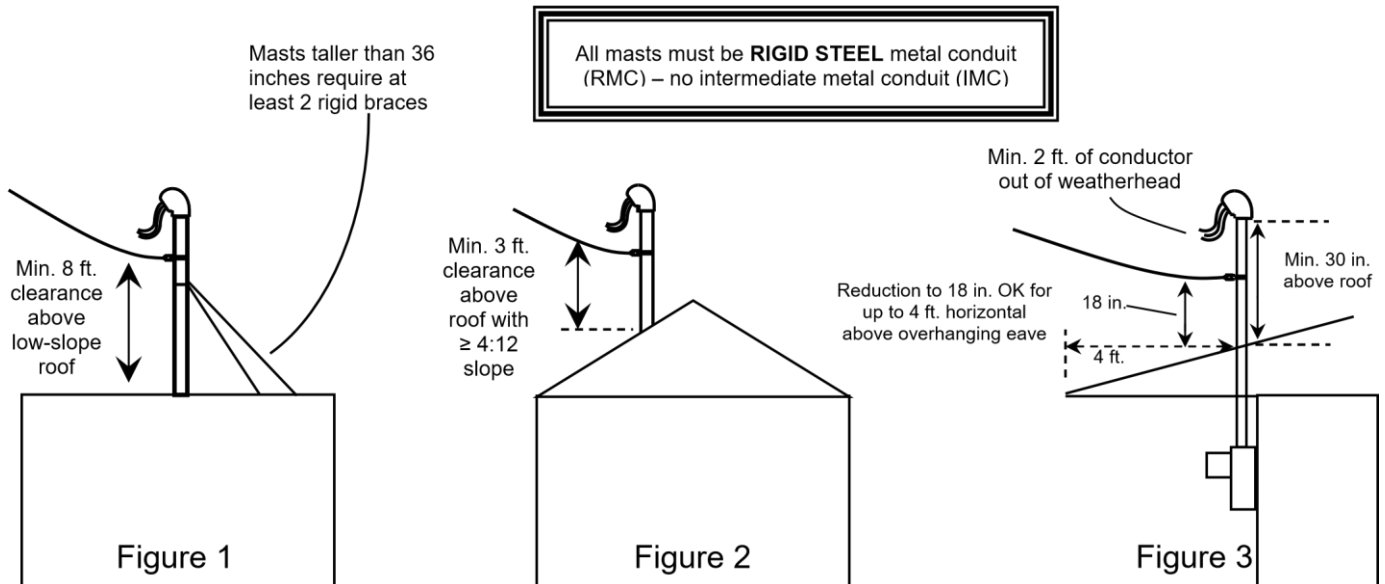
Community & Economic Development Department

Building Division

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2022 CALIFORNIA ELECTRICAL CODE / RESIDENTIAL ELECTRICAL SERVICE UPGRADES



Service Masts:

- Service masts must be **RIGID** steel metal conduit. Intermediate Metal Conduit (IMC) is not acceptable.
- 2 secure points of support are required between the threaded enclosure at the top of the panel and the weather head. If couplings are used, there must be 2 points of support between the last coupling and the weather head.
- The minimum height of the service mast, from bottom of weather head to the roof, is 30 inches.
- Masts over 36 inches in height above the roof require rigid bracing.
- Only power conductors are allowed on the mast – cable TV or phone wires are not allowed.
- The mast must provide the following minimum height of the service drop wires above roofs CEC230.24:
 - 8 feet above a roof with slope less than 4:12 (figure 1)
 - 3 feet above a roof with slopes 4:12 and greater (figure 2)
 - 18 inches above overhanging eaves for a maximum of 4 feet horizontal (figure 3)
- The clear vertical heights above also apply for 3 feet past the edge of the roof, and also apply to any outbuildings over which the service drop passes.
- Service drop conductors must have a minimum height of 12 feet above ground, except that areas accessible only to pedestrians can be 10 feet. Clearance above swimming pools must be 22½ feet in any direction to the water. CEC230.24(B) & CEC Table 680.9(A)
- A minimum of 2 feet of conductor must extend from the weather head. The neutral must be identified (white tape encircling the conductor is acceptable).
- Conductors must be sunlight-resistant and sized in accordance with the table on the following page.
- The penetration through the roof must have a watertight flashing.

Service Panels:

- Surge protectors required for services (CEC 250.67)
- Lug barriers are required where exposed terminals are accessible (CEC 230.62(C))
- Disconnects for services shall be readily accessible outside of the building (CEC 230.85)
- Main disconnects require permanent labeling. **Not handwritten** (CEC 110.21(B))
- Equipment must be listed and labeled as suitable for use as service equipment.
- Each service requires isolated main disconnects. Disconnects for multiple units cannot be located within the same enclosure. (CEC230.71)
- Semi-flush panels require a listed and approved flange kit that is integrated to the water-resistive barrier (WRB) in the wall. When the wall is stucco, the stucco must be broken back at least 6 inches around the panel. New paper must be lapped in shingle fashion a minimum of 3 inches at sides, top and bottom to the existing paper, and must be lapped over the flashing flange. New wire lath must be secured to studs, and a lath inspection will occur at the same time as the service upgrade inspection.
- Do not apply any stucco until the lath inspection has been approved. Stucco requires application in 3 coats with an interval between coats. Each coat must develop sufficient rigidity to resist cracking before the next coat is applied. The standard recommendation is 7 days after the scratch coat and 3 days after the brown coat. Other intervals are possible depending on weather and job conditions.
- The grounding electrode system must comply with current CEC standards. If metal underground water piping is present, the grounding electrode conductor must connect to it no further than 5 feet from the point of entrance of the piping to the building. In most upgrades, this requires running the grounding electrode conductor to the location of the main water shutoff. See “grounding electrode systems” handout.
- A #6AWG copper bond wire must extend from the panel to an intersystem bonding termination kit on the wall outside the panel. This is used to interconnect phone and CATV grounding. (CEC 250.94)

Table 250.122 Minimum Size Equipment Grounding Conductors for Grounding Raceway and Equipment

Rating or Setting of Automatic Overcurrent Device in Circuit Ahead of Equipment, Conduit, etc., Not Exceeding (Amperes)	Size (AWG or kcmil)	
	Copper	Aluminum or Copper-Clad Aluminum*
15	14	12
20	12	10
60	10	8
100	8	6
200	6	4
300	4	2
400	3	1

Procedures:

- Do NOT disconnect the PG&E service conductors – only PG&E can work on those. Do not make a “hot cutover” of the PG&E service drop to the new service entrance. The inspector will fail the installation if this is done.
- The building department inspector will need to view the conductors that are landed in the meter section of the service.
- If the inspection passes, the building department inspector will authorize a connection of the service by placing a tag on the panel