



DEVELOPMENT SERVICES – BUILDING INSPECTION
INSPECTION GUIDELINES:
ELECTRIC METER RELEASE – RESIDENTIAL

INSPECTION CODE: 405

SCOPE: RESIDENTIAL

APPLICABLE CODES: 2016 CBC, CRC, CPC, CMC, CEC, CALGreen, CEnC, and PAMC

The information provided in this document is general and intended as a guide only. Each project is unique and additional requirements may be enforced as deemed appropriate.

IMPORTANT

- Failure to complete items below, prior to inspection, may result in a re-inspection fee.
- Meter removal and service disconnect/reconnect are to be performed by City of Palo Alto Utilities personnel only. Contractors who tamper with CPA Utilities equipment will be issued a citation. Citations will be assessed at \$500.00 per incident. (PAMC 12.20.010)

PRE-INSPECTION

GENERAL REQUIREMENTS

- Meters will not be released prior to scheduling a Final Inspection. Projects wanting an electric meter release prior to Final Inspection must follow the process under the “Residential Conditional Meter Release (CMR) and Construction Power” form. If you have a copy of the Inspection Guidelines, see the Index under “22.0 FORMS AND NOTICES” for the form, or find it [online](https://cityofpaloalto.org/civicax/filebank/documents/18656) at: <https://cityofpaloalto.org/civicax/filebank/documents/18656>.
 - For accessory dwelling units (ADUs), a CMR form is required where separate metering equipment is installed.
- Disconnect/reconnects are scheduled Monday-Thursday. If an installation is not completed by 3:30PM, the Contractor is required to pay for an after-hours inspection (2 hour minimum) prior to reconnect. (CPA Procedure)
- Ring-type meter sockets are required per CPAU Electric Service Requirements Section II, Sections III, Section III F.3.H and Section V H.3.F
- Prior to meter release, the building shall be weather tight. Where electric panels are attached to exterior surfaces, such surfaces shall be protected by finishes such as: stucco, sheet metal, cement board siding, vinyl siding, exterior rated plywood (that has been painted), and concrete. Contractor shall verify building protection from water prior to meter release or final.

- All wiring shall be complete and protection provided. All lighting outlets and receptacles to be made up and/or covered. (CEC 410.8)
 - For accessory units and ADUs, all above requirements shall be completed.
 - For ADUs that are not metered separately, and a new service is installed at the main house, the main breaker shall have CalOSHA lock-out tag-out in place.
- Verify all required sequential inspections, including All-Trades/Rough Electrical, and correction notices are complete.

OVERHEAD SERVICE REQUIREMENTS

- Prior to doing any work, call CPA Utilities at 650-496-6914 to schedule a service disconnect/reconnect.
- Prior to any relocation, contact electric engineering for approval. An approved site plan shall be on site at time of inspection. See Electric Utilities standard drawing [SR-CN-0-1009](#) for overhead services.

UNDERGROUND SERVICE REQUIREMENTS

- For underground services, CPA Utilities shall inspect and place their green sticker on the panel prior to Building Department's inspection. Contact the CPA Utilities inspector at (650) 496-6977 to schedule an inspection.
- Prior to any relocation, contact electric engineering for approval. An approved site plan shall be on site at time of inspection. See Electric Utilities standard drawing [SR-CN-U-1010](#) for underground services.

GENERAL REQUIREMENTS

- Prior to installation/placement of service panel you must verify working/space clearances (36" deep x 30" wide x 6'6" high (CEC 110.26)) and compliance with CPA Standard Drawing [SR-CN-0-1009](#). Please note that electric and gas services must be separated.
- Bollards shall be installed when electric equipment is subject to physical damage (e.g, when the meter is less than 75" above finished grade and on a driveway). See CPA Electric Utilities standard drawing [SR-MT-E-1035](#).
- The meter shall be installed at minimum 48" and maximum 75" height above finish grade. (CPA Utilities Standard Drawing [SR-CN-0-1009](#), [SR-CN-U-1010](#), [SR-MT-E-1035](#))
- Disconnects, switches and breakers shall be installed so that the center of the operating handle at its highest position is not more than 6'-7" above the floor or working platform, and it shall be located in a readily accessible location. (CEC 230.70 (A)(1), CEC 404.8(A))
- Overhead service risers in excess of 36" high or supporting service drops of 100' or more must be braced. (CEC 230.28(A))

- Verify that service entrance conductors will have proper clearances over the roof and ground. (CEC 230.24(A), CEC 230.24(B))
 - Clearance above ground:
 - 10' where accessible to pedestrians only
 - 12' over residential property and driveways
 - 15' where voltage exceeds 300 volts
 - 18' over public streets/alleys/roads and parking areas
 - Clearance above the roof:
 - 8' above the roof and 3' from the perimeter. Exceptions: Reduced to 3' where pitch of roof is 4/12 or greater or reduced to 18" where not more than 6' of conductor spans over 4' of roof overhang.
- Communication wires must be a minimum distance of 12" from the service entrance conductors within 15' of building and 24" clearance if farther than 15' per utility standards G0-95.
- Verify roof flashing at the riser is sealed and water tight. (CRC R903.1)
- Provide 24" minimum wire extensions (SEC) for drip loop. (CPA Utilities Standard Drawing [SR-CN-0-1009](#))
- Circuit breakers shall be listed to be used with panel (usually the same manufacturer). All unused circuit breaker openings shall be closed. (CEC 110.3(B), CEC 408.7)
- Label service disconnect and all circuits. (CEC 110.22, 230.70(B))
- Underground service entrance conductors must be installed, landed, and sealed prior to inspection. (See UNDERGROUND SERVICE REQUIREMENTS for more information.)
- Where conductors terminate at a mechanical lug, conductors shall be wire brushed and coated with an approved anti oxidation compound as recommended by the manufacturer.
- All underground service conduits shall be sealed. (CEC 230.8, CEC 300.5(G))
- An intersystem bonding termination is required. Provide a listed terminal at the meter enclosure or a bonding bar near the service equipment enclosure or near the grounding electrode conductor (GEC). The bonding bar connection requires a minimum 6 AWG conductor. The termination is required to have a minimum of three positions and shall remain accessible. (CEC 250. 94)
- Panels with more than 6 disconnects require a main breaker. (CEC 230.70, CEC 230.71)
- Panel boards at separate structures require a main disconnect. (CEC 250.32 (D))
 - NOTE: This requirement also applies to accessory units and ADUs.
- Verify that the service entrance conductors and general wiring were sized accordingly. (CEC 310, CEC 310.15 (B))

- Provide bonding jumper where a metal service raceway terminates to an enclosure with a ringed knockout. Size bonding jumper per CEC Table 250.66 250.92 (B)(4)
- Bond hot/cold/gas at water heater. (CEC 250.104 (A))
- Metal underground gas pipe must not be used as a grounding electrode. (CEC 250.52(B)(1))
- Internal parts of electrical equipment, including bus-bars, wiring, terminals, insulators, and other surfaces, shall not be damaged or contaminated by foreign materials such as paint, plaster, cleaners, abrasives, or corrosive residues (CEC 110.12(B))
- Supports: EMT, IMC, and RMC shall be securely fastened in place at least every 10' and within 3' of each outlet box, junction box, device box, cabinet, conduit body or other termination. (CEC 342.30(A), CEC 344.30(A), CEC 358.30(A))
- There shall be no electrical equipment, conduit, conductors, etc., 10' above the gas meter or within 18" of the service riser. (WGW Standard Drawing [GD-02](#))
- Verify grounding electrode system (CEC 250.52):
 - 20' of # 4 rebar or 20' of minimum 4 AWG bare copper wire placed 3" from the bottom of the footing
 - If no footing, use (2) 8' long by 5/8" ground rods spaced a minimum of 6' apart. Both of the ground rods should be placed at the service location, when possible.
 - In addition to the primary grounding electrode, a metal water pipe supplemental electrode is required and must be connected with a minimum 4 AWG copper wire and connected at the exterior hose bib where the water service enters the building.
 - Note: For sizing the GEC for services over 200 AMP's refer to CEC Table 250.66
- For homes with nonmetallic water services, a label shall be fastened to the main electrical meter panel stating, "THIS STRUCTURE HAS A NONMETALLIC WATER SERVICE." (IAPMO IS 8-2006)
- The grounding electrode conductor connections shall be accessible. CEC 250.68 (A)
- Where more than one branch circuit supplies a separate structure, a grounding electrode system is required at each structure/building (e.g., ground rods, water service bond, etc.). (CEC 250.32 (A))
- Where there is only one ground rod, provide a 2nd ground rod a minimum distance of 6' apart. Bond with #6 AWG. Ground clamps shall be rated for direct burial (e.g., all brass or brass with stainless steel bolts.) (CEC 250.56, CEC 250.66 (A), CEC 250.70)
- Ground clamps for rebar must be marked "RB" listed for rebar. (CEC 250.70)
- Install grounding electrode and grounding electrode conductor per CEC Table 250.66 and CEC 250.50-250.70.

- Bond the metallic water service within 5' from the point of entrance to the building. (CEC 250.52 (A)(1))

TORQUE REQUIREMENTS

- Contractor to provide a list of torque specification of circuit breakers at time of final inspection.
- Torque all connections per manufacturer's listing. Electrical contractor to be onsite with torque wrench and torque screwdriver of the audible type. (CEC 110.3 (B))
 - For ADUs, all torqueing shall be completed.
- Secure lugs with channel locks to hold lug in place when applying the proper torque.

EQUIPMENT 400A OR LARGER

- If service is for 400 amps or larger, verify that compression lugs are being used. The catalog number of the lug is usually indicated on the inside of the service enclosure. (CPA Utilities)
- For services 400A or larger, check for the labels for the service equipment with the maximum available fault current and the date of calculation. The label should be a phenolic plaque (mounted on the face of the equipment) and should read, "Maximum Available Fault Current: 42,000A. Date Calculated: DD/MM/YYYY". (CEC 110.24)
- Check that the equipment is rated at or above the short circuit current available (see the submittal guidelines for more information). This value can be obtained by the project CPAU engineer. Residential electric services greater than 200 amps will likely have an AIC rating higher than 10k amps based on the CPAU transformer.

POST-INSPECTION

- After yellow sticker has been placed by the building department, meter will be set provided all fees have been paid and paper work including load sheets have been processed. Customer service may be contacted at 329-2161 to verify a service order has been issued. Cutaway/reconnect services will be restored immediately after building department approval.
- The Contractor may contact Customer Service at (650) 329-2161 to verify that the service order has been issued.
- Cutaway/Reconnect services will be restored immediately after Building Department approval.