



# City of San Dimas

Building and Safety Division

## Electrical Panel Replacement Requirements

PROJECT INFORMATION			
Project Address:		Permit Number:	
Work Description:			

- 1) The Governing Codes For the project are (*Please include these on the first page of your plan submittal*):
  - a. **2022 California Residential Code**
  - b. **2022 California Mechanical Code**
  - c. **2022 California Electrical Code**
  - d. **2022 California Plumbing Code**
  - e. **2022 California Energy Code**
  - f. **2022 California Green Code**
  - g. **City of San Dimas Municipal Code**
- 2) Provide a site plan showing all property lines and all structures on the property (including swimming pools and spas).
- 3) The plan is to specify if the service is supplied by the utility provider overhead or underground.
  - a. If an overhead service is at the site, the site plan is to show the location of the Southern California Edison power pole where the service drop will originate and identify on the plan the path of the service drop will travel to the mast riser at the residence.
- 4) The location of the panel shall be clearly marked on the site plan.
  - a. If an overhead service is shown, please provide:
    - i. The size and type of material the service mast will be.
    - ii. The type and size of the service entrance conductors.
- 5) The plan shall specify the size of the new main panel.
  - a. A single line diagram will be required if adding sub-panels or feeders to the new service.
- 6) **The new service equipment is required to be provided with a surge-protective device (SPD). (CEC 230.67) and (CEC 240.42)**
- 7) Southern California Edison is to provide a meter spot for the replacement panel.

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- a. Please note that if the panel location or service drop is in violation of the California Electrical Code, the City of San Dimas Building and Safety Division may not accept the location spotted by Southern California Edison.
- 8) Clearances above roofs, driveways, walkways, swimming pool and spas will have to meet the California Electrical Code requirements. (CEC Sections 230 and 680)
  - a. 10-feet clearance above final grade and decks in area accessible only to pedestrians.
  - b. 8-feet clearance above roofs.
    - i. If the roof slope is equal to or greater than 4:12, the vertical clearance may be reduced to 36-inches.
  - c. 12-feet above driveways.
  - d. 22.5-feet above the water level at or around swimming pools and spas to a point 10-feet horizontally from the waters edge.
- 9) Working space around equipment is required to be provided. (CEC 110.26)
  - a. Working clearance in front of the equipment is to be 36-inches deep minimum.
  - b. The working space shall be a minimum of 30-inches wide (or width of the panel if greater than 30-inches).
  - c. The working space clearances shall extend from the grade, platform or floor to a height of 78-inches or to the height of the equipment, whichever is greater.
  - d. Equipment doors on hinged panels must open at least 90-degrees.
  - e. Existing gas meters, bushes, trees, or other objects are not allowed in the working space around equipment.
- 10) Grounding Electrode System is to comply with Article 250.
  - a. All grounding electrodes present at each building or structure must be connected to. The abandonment of electrodes is not allowed. (250.50)
    - i. The list of electrodes, if present at the building, are required to be tied together;
      1. Concrete encased electrode (UFER)
        - a. If a UFER is present at a building is can not be abandoned. The UFER is required to be connected to the panel with an appropriate size grounding electrode conductor.
      2. Metal frame of a building or structure.
      3. Ground Ring
      4. Rod and pipe electrode.

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5. Underground water pipe (metallic).
    - a. When the water service to the home is metallic, it must be connected within the first 5-feet of where the pipe enters the building, with an appropriate size grounding electrode conductor.
  6. Plate electrode.
    - a. Aluminum and/or underground gas piping systems are not allowed to be used as grounding electrodes.
  - b. Rod and pipe electrodes shall be installed such that at least 8-feet of length is in contact with the soil. It shall be driven to a depth of not less than 8-feet.
    - i. Should a rock bottom be encountered, the requirements of 250.53.4 must be followed.
  - c. The upper end of the rod or pipe shall be flush with or below ground level unless the above ground end and grounding electrode conductor attachment are protected against physical damage by enclosing the ground clamp in metal, wood, or equivalent protective covering. (250.53.4 and 250.10)
  - d. Metal underground water pipe shall have a least 10-feet in direct contact with the earth.
    - i. The continuity of the grounding path or the bonding connection to the interior piping shall not rely on water meters, filtering devices or similar devices (thread connected pressure regulators). (250.53.D.1 and 250.68.B)
  - e. A single rod, pipe, underground water pipe or plate electrode shall be supplemented by an additional electrode.
- 11)** Grounding electrode conductor and bonding jumpers are to comply with 250.68.A through C.
- a. All mechanical elements used to terminate a grounding electrode conductor or bonding jumper to a grounding electrode must remain accessible.
  - b. The connection of a grounding electrode or bonding jumper to a grounding electrode shall be made in a manner that will ensure an effective grounding path.
    - i. Where necessary to ensure the grounding path for a metal piping system used as a grounding electrode, bonding shall be provided around insulated joints and around any equipment likely to be disconnected for repairs or replacement. Bonding jumpers shall be of sufficient length to permit the removal of such equipment while retaining the integrity of the grounding path.

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- c. Grounding electrode conductors and bonding jumpers shall be permitted to be connected at the following locations and used to extend the connection to an electrode:
  - i. Interior metal water piping located not more than 5-feet from the point of entrance to the building.
  - ii. The metal structural frame of a building.
  - iii. A concrete encased electrode.

**12) Metal water piping and other metal piping (including gas piping) installed in, or attached to, a building or structure shall be bonded to any of the following:**

- a. Equipment grounding conductor for the circuit that is likely to energize the piping system.
- b. Service equipment enclosure.
- c. Grounded conductor at the service.
- d. Grounding electrode conductor, if of sufficient size.
- e. One or more of the grounding electrodes used.

**13) Validity of permit:**

- a. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of the Code or of any other ordinance of the jurisdiction.
- b. A Permit presuming to give authority to violate or cancel the provision of the Code or other ordinance of the jurisdiction shall not be valid.
- c. The issuance of a permit based on construction documents or other data shall not prevent the Building & Safety Manager from requiring the correction of errors in the construction documents or other data.

**14) The above list is not an all-inclusive list of requirements. It is the responsibility of the Permittee (owner, contractor or person performing the work) to be familiar with all the Code requirements, state laws and local ordinances.**