How to Obtain a Permit for the Installation of Solar Photovoltaic (PV) Systems

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Permit Requirements

A. An Electrical Permit is required for the installation of PV systems and photovoltaic shingle systems.

B. A Combination Building Permit is required if the scope of work includes structural modifications to existing single-family/duplex/townhouse residential structures to support the PV system or photovoltaic shingles. In this case, a separate Electrical Permit is not required.

C. A Building Permit is required for the installation of a PV system on existing non-residential or multi-family residential buildings/structures if the scope of work includes modifications to structures to support the PV system or when the scope of work includes new accessory structures such as carports, canopies or shade structures.

D. A Building Permit or Combination Building Permit is required for a ground-mounted PV system with a support structure greater than 5 feet above ground.

E. For projects where a solar PV system or systems will be installed on multiple buildings, a separate electrical permit is required for each stand-alone structure, except for garages and carports that are accessories to the building and located on the same premises.

Submittal Requirements

The following plans and documents shall be submitted along with the appropriate fees.

A. **Application Package**

1. Hazardous Materials Reporting Form (DS-165) when a Building Permit is required and/or when batteries are included in the scope of work for projects other than single-family, duplex and townhouse projects
2. San Diego Regional Hazardous Materials Questionnaire (HM-9171) when a Building Permit is required
3. Stormwater Requirements Applicability Checklist (DS-560) when a Building Permit is required
4. Owner-Builder Verification (DS-3042) if the property owner is doing the work

B. **Plans**

1. **Plan Template for Single-Family/Duplex/Townhouse Residential**
   It is recommended that all residential projects use the Residential PV plan template per Appendix A. The template can be used for a residential PV project located on a sloped roof. Provide the following items when submitting with the Residential PV plan template.
   - The plan template sheets must be modified to reflect the actual project-specific details.
   - The manufacturer's specifications for the PV modules, racking, inverter(s) and meter.
2. **All Other PV Installations**
   Provide the following documents for all other PV installations.
3. **Site Plan**
   The site plan must show the location of all existing and proposed PV panels, AC or DC combiners, all disconnects, inverters, and sub-panels connected to the PV system and the meter panel. The site plan for ground-mounted PV systems must show as outlined in Information Bulletin 122, How to Prepare a Site Plan and Vicinity Map.
4. **Roof Plan**
   The roof plan must show the roof slope and location of the existing and proposed PV panels on the roof in relation to any ridge, hip or valley, as well as the location and size of any existing roof-mounted equipment. Include the weight of the PV system in pounds per square foot and the connection to the roof details on the plans. Also, plans must comply with all access pathways and ridge clearance requirements.
5. **Single-Line Diagram**
   The single-line diagram must show the number of PV panels (including manufacturer model number) with voltage and kilowatt output, disconnects, combiners, inverters (include manufacturer model number) with input ratings, ampere rating of sub-panels connected to the PV system, ampere rating of meter socket bussing, ampere rating of main service disconnect, ampere rating of PV circuit breaker, size and type of all raceways and the size and type of all conductors.
6. **Manufacturer's Specifications**
   Provide the manufacturer's specifications for the proposed PV modules, racking, inverter(s), batteries, and meter. Specifications for PV panels and racking systems must include the UL listings indicating that a Class A fire rating for the proposed system is received, except for ground-mounted PV systems with no use underneath the panels.
7. **Design Professional Stamp and Signature**
   All plans must be stamped and signed in accordance with the California Business and Professions Code by the registered design professional.
   - PV plans may be stamped and signed by a California registered Civil or Electrical Engineer or a licensed Electrical Contractor (C-10 License), General Contractor (B License) or Solar Contractor (C-46 License) who is responsible for the design and installation of the system.
   - A California registered Electrical Engineer or a C-10 must sign and stamp plans when an electrical panel upgrade is proposed.
   - A California registered Architect, Civil or Structural Engineer must stamp and sign structural calculations and plans.
8. **Building Integrated Photovoltaic Shingles**
   Where building integrated photovoltaic shingles are provided, the following requirements must be shown on plans:
   - Shingles must be applied to a solid or closely fitted deck, except where the shingles are designed to be applied over spaced sheathing.
   - Shingles shall not be installed on roof slopes less than 2:12 slope (17%).
   - Shingles shall be listed as a Class A roof assembly in accordance with San Diego Municipal Code (SDMC) 149.0902 (c) or 145.1505 (c), as applicable.
   - Shingles shall be listed and labeled in accordance with UL 1703.
   - Shingles must be tested in accordance with ASTM D3161 for wind resistance per CRC 905.16.7 or CBC 1507.17.8, as applicable.
9. **Structural Review, Plans and Calculations**
   A. **Structural Review Required**
   Structural review is required for the installation of PV systems where any of the following conditions occur:
   - Alterations to a structure as required for support and/or attachment for PV systems.
   - The weight of the PV system exceeds six pounds per square foot.
   - The weight of any ground-mounted or roof-mounted equipment exceeds 400 pounds.
   - PV mounting height, at any point, is greater than 24 inches above the roof level
   - PV system installed on a ballasted roof.
   - Ground-mounted PV system located more than five feet above the ground.
   - Batteries not installed in accordance with the manufacturer's instructions.

   B. **Structural Plans**
   Provide the following information when structural review is required.
   1. Structural plans that demonstrate the required load path to the ground.
   2. A roof framing plan with the following information:
      - Size and location of all roof framing members and vertical support elements.
      - PV support structure framing plan with size and location of all framing members.
      - Location, size and weight of any existing or new roof-mounted equipment.
      - Maximum weight, number and location of PV panels.
      - Size, weight and number of ballasts at each location.
      - Attachment of panels to the support structure and the support structure to the roof or to the ground.
      - Manufacturer's installation specifications for pre-manufactured racking systems.
      - Cross-section showing the height of the proposed PV panels above the roof or ground, the supporting structure, slope, and the distance down the slope from any roof ridge.
10. **Structural Calculations**
    Structural calculations must be provided to evaluate the existing roof framing system for roof dead load, PV dead load (panels, ballasts, support platforms, etc.) and roof design live load. For roof areas covered by the PV panels, where the clear space between the PV panels and the rooftop is 24 inches or less, roof design live load may be ignored. The adequacy of the following must be evaluated by a California-licensed civil/structural engineer or architect:
    - Existing gravity load-carrying structural elements (joists, beams, girders, trusses, columns, foundation) where installation of the PV system causes an increase in design gravity load of more than 5% and,
    - Existing lateral load-carrying structural elements (horizontal diaphragms, shear walls, braced/moment frames) where installation of PV system causes an increase in the demand to capacity ratio under earthquake loading of more than 10%.
11. **Zoning Review**
    A zoning review is required for the installation of PV systems that require a Building Permit or Combination Permit. Zoning, structure height, brush management, FAA notification and conditions of prior development permits are enforced for the installation of PV systems.
12. **Historical Review**
    Historic review is required for the installation of PV systems that also require a Building Permit or Combination Permit if the project involves any parcel with a designated historical resource or is located within the boundaries of an adopted historic district, a historical review is required. Please refer to Information Bulletin 581, "Designated Historical Resource Review" for additional Historic Review information.
13. **Fire Roof Access and Pathways**
    Roof access, pathways and spacing requirements must be provided in accordance with the California Fire Code, Section 1205.2. If compliance is not provided or an alternative is proposed, a Fire Plan Review will be required.

Options for Service

A. **Single-Family/Duplex/Townhouse Residential Roof-Mounted Solar PV Systems**
Residential roof-mounted PV projects designed per the template and building integrated photovoltaic shingles for single-family, duplex or townhouse roofs are self-issued with no plan review with the following limits/allowances.

1. Not more than 38.4 kW AC maximum output.
2. Structural review is not required per Section II, C, 1.
3. Fire Plan Review is not required per Section F.
4. No work necessitating a combination building permit, such as structural modifications to the roof structure, adding a new structure, etc.
5. The scope can include the following scope of work in addition to PV installation:
   - Panel upgrade up to 320 amps.
   - An energy storage system up to 38.4 kWh with each unit no greater than 20 kWh.
   - Inverter-integrated electric vehicle charger.
6. Submit these projects electronically through the online portal, selecting the Photovoltaic – SB 379 Permit.

B. **All Other Solar PV Systems Not Requiring a Building or Combination Permit**
Plans for PV systems not qualifying per Section A or Section B above that do not require a building or combination permit must be submitted electronically through the online portal by selecting "Plan - Mechanical/Electrical/Plumbing Standalone Permit."

C. **Solar PV Systems Requiring a Building or Combination Permit**
Plans for PV systems that require a building permit must be submitted electronically through the online portal by selecting "Building Permit."

Fees

The following fees are required to be paid prior to review unless otherwise indicated below. For your convenience, DSD offers online payments. Payment may also be made in person by cash, check, debit card, Visa or MasterCard credit cards. Checks shall be in the exact amount, drawn on U.S. banks, and made payable to the "City Treasurer."

Please note that plan check fees and other administrative fees are non-refundable. See the Refund Policy noted within Refund Application Form DS-721 for additional refund information.

The following fees are for Electrical Permits only. The fees listed below include upgrades to service panels up to 320 amps. Projects requiring structural, zoning, brush management/landscape or historic reviews may include charges for those reviews based upon a rate of $267.24 per hour. Additional fees will be assessed when a Building or Combination Building Permit is required (see Information Bulletin 501 for fees).

A. **No Plan Review PV Systems (See Section IIIA)**

Records Fee	$35.48
First System/Inverter Inspection	$289.56

B. **Single-Family/Duplex/Townhouse PV Systems with Plan Review**

Records Fee	$35.48
First System/Inverter Plan Check	$161.89
First System/Inverter Inspection	$289.56

C. **Non-Residential/Multi-Family Residential PV Systems and Photovoltaic Shingles**

Records Fee	$72.54
First 100 kW Plan Check	$758.40
Each Additional 100 kW Plan Check	$264.11
First 100 kW Inspection	$510.52
Each Additional 100 kW Inspection	$205.10

D. **Express Plan Check**
When available, a reduced review period can be accomplished by paying an Express Plan Check fee of 1.5 times the regular plan check fee plus a $792.34 administrative fee. An express plan check is unavailable for single-family homes and duplex projects.

Inspections

Required inspections may include Electrical Underground, Electrical Rough, Electrical Final, Structural-Foundation, Structural-Rough and Structural-Final. After receiving final inspection approval for all related City of San Diego Permits, San Diego Gas and Electric (SDG&E) will be notified. The system is not approved to energize until SDG&E approval is obtained.

References

- San Diego Municipal Code (SDMC)
- How to Process Construction Changes to Approved Plans (IB 118)
- How to Prepare a Site Plan and Vicinity Map (IB 122)
- Fee Schedule Construction Permits – Structures (IB 501)
- Designated Historical Resource Review (IB 581)
- Hazardous Materials Reporting (DS-165)
- Stormwater Requirements Applicability Checklist (DS-560)
- Owner-Builder Verification (DS-3042)
- San Diego Regional Hazardous Materials Questionnaire (HM-9171)
- Residential Photovoltaic (PV) Plan Template