City of Walnut Creek

Development Review Services

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Revised Nov. 6, 2018 ***Information Bulletin No. IB-025***

Submittal Requirements for Photovoltaic Array Systems

General Requirements

1. Due to the specialized nature of photovoltaic systems, the City of Walnut Creek requires that the system be designed by a registered electrical engineer or licensed electrical contractor, except small residential rooftop solar energy system. If a licensed electrical contractor is used for the design, then the license holder must sign the drawings and the electrical contractor must install the system per California regulations. For residential single-family or duplex photovoltaic systems, authorized agents of the contractor may sign the drawings only if the Letter of Authorization includes specific language authorizing the agents to sign drawings. A system designed by a registered engineer may be installed by the owner or licensed electrical contractor.
2. The design and installation must meet the currently applicable *California Electrical Code* provisions (based on the *National Electrical Code*). Refer to the City of Walnut Creek's Building Division website for the current codes: http://www.walnut-creek.org/citygov/depts/comm_dev/building_div/current_building_codes.asp
3. PG&E customers must not interconnect their generating facility with the utility's distribution facilities until they receive written authorization from Pacific Gas and Electric Company. Unauthorized interconnections may result in injury to persons and damage to equipment or property for which the customer may be liable. PG&E may be contacted by telephone at (415) 972-5676 or e-mail at gen@pge.com. PG&E's web site for these systems is http://www.pge.com/gen.
4. All components used in the photovoltaic power system or alternative energy source system must be listed by a nationally recognized testing agency to standards appropriate for the intended applications.
5. At the present time we are unable to process credit card payment via email due to security concerns. Credit card payments can be processed via fax.

Checklist

1. Plot Plan/Title Sheet
   a) Identification of the address and owner of the property
   b) All existing buildings and accessory building footprints
   c) All trees and their associated drip lines, including trees from adjacent property which have drip lines onto the subject property
   d) Location and layout of any private sewer disposal system, including septic tank and leach field routing.
   e) Location of any potable water wells.
   f) Parcel property lines
   g) Set Backs
   h) North arrow
   i) Easements
   j) Photovoltaic panels
   k) Output capacity of the system in kilowatts
   l) Detail references to show specifics as indicated below.

2. Construction Plans
   a. Roof plan or structure plan showing Photovoltaic layout and attachment locations to roof or structure support. Detail references to details of attachment drawn to scale. Show access pathways required by the California Building and Fire Codes.
   b. Plans and wall elevations clearly showing the location and spatial arrangement of each listed electrical panel and component, including but not limited to DC to AC inverter(s), battery charging system, disconnect breakers and fuses, battery racks or panels, generators, auto-disconnect system interface with power company.

3. Battery Bank
   a. Provide floor plan of building or shed used to house battery bank.

b. Indicate battery type, total size of bank, physical dimensions of bank, permanent location of bank, ventilation, protection from physical damage.
c. Method and details of anchoring battery bank to resist lateral and overturning movement.
d. Wiring diagram of battery set.

4. Electrical Plan

An electrical plan shall be submitted that includes the following:

- Locations of main service or utility disconnect
- Overcurrent protection (circuit breaker or fuse, with capacity)
- Total number of modules, number of modules per string, and the total number of strings
- Make and model of inverter(s) and/or combiner box if used
- One-line diagram of system
- Specify grounding/bonding, conductor type and size, conduit type and size, and number of conductors in each section of conduit
- If batteries are to be installed, include them in the diagram and show their locations and venting
- Equipment cut sheets including inverters, modules, AC and DC disconnects, combiners. Indicate size, weight, manufacturer, and current producing capacity of the panels. The solar PV panel/module and other equipment used in the PV system shall be listed/certified by a nationally recognized listing/certification agency in accordance with the applicable standards.
- Labeling of equipment as required by CEC, Sections 690 and 705
- Site diagram showing the arrangement of panels on the roof or ground, north arrow, lot dimensions, existing shading elements and the distance from property lines to adjacent buildings/structures (existing and proposed)
- CBC 1505.9: Photovoltaic panels & modules. Rooftop mounted photovoltaic systems shall be tested, listed & identified with a fire classification in accordance with UL 1703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

5. Structural Support

Structural support information for roof-mounted systems should include the following:

- The type of roof covering and the number of roof coverings installed
- Type of roof framing, size of members, and spacing
- Weight of panels, support locations, and method of attachment
- Framing plan and details for any work necessary to strengthen the existing roof structure
- Any relevant calculations or product listings
- Where a listed or engineer-designed racking system is used, provide documentation showing manufacturer of the rack system, maximum allowable weight the system can support, attachment method to the roof or ground, and product evaluation information or structural design for the rack system

Inspection

Below are common points of inspection with which the applicant should be prepared to show compliance:

- Number of PV modules and model number matches plans, and specification sheets
- Array conductors and components are installed in a neat and workman-like manner
- PV array is properly grounded
- Electrical boxes are accessible and connections are suitable for the environment
- Array is fastened and sealed according to attachment detail
- Conductors ratings and sizes match plans
- Appropriate signs are property constructed, installed, and displayed, including:
  - Sign identifying PV power source system attributes at DC disconnect
  - Sign identifying AC point of connection
  - Sign identifying switch for alternative power system
- Equipment ratings are consistent with application and installed signs on the installation, including:
  - Inverter has a rating as high as max voltage on PV power source sign
  - DC-side overcurrent circuit protection devices (OCPDs) are DC rated at least as high as max voltage on sign
  - Switches and OCPDs are installed according to the manufacturer's specifications (i.e. many 600VDC switches require passing through the switch poles twice in a specific way)
  - Inverter is rated for the site AC voltage supplied and shown on the AC point of connection sign
  - OCPD connected to the AC output of the inverter is rated at least 125% of maximum current on sign, and is no larger than the maximum OCPD on the inverter listing label

– Sum of the main OCPD and the inverter OCPD is rated for not more than 120% of the buss bar rating

Expedited permitting process for Small residential rooftop solar energy system

Walnut Creek has an expedited, streamlined permitting process for small residential rooftop solar energy system. The eligible systems are defined below:

- System size is 10 kW AC CEC rating or less
- The solar array is roof-mounted on one- or two-family dwelling or accessory structure
- The solar panel/module arrays will not exceed the maximum legal building height
- Solar system is utility interactive and without battery storage
- No more than four photovoltaic module strings are connected to each Maximum Power Point Tracking (MPPT) input where source circuit fusing is included in the inverter
- For central inverter systems: No more than two inverters are utilized

The submittal plans shall be prepared per city's check list and standard plans. The standard plans can be found from The California Solar Permitting Guidebook : one for systems using a central inverter and the other for systems utilizing micro-inverters, through the following link:

https://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/California_Solar_Permitting_Guidebook_2015.pdf

The application and plans can be submitted via email (buildingtech@walnut-creek.org). When the permit is approved the applicant will be notified of the fees due. The applicant must come in to City Hall to sign and pay for the issued permit.

The city will perform plan review and inspections on small residential installations and notice of the installation will be sent to the Fire District. No separate review and inspection is required by Fire District. To the extent possible, a building permit will be issued at the same day for over-the-counter applications or within three (3) business days for electronic applications upon receipt of a complete application that meets the requirements of the approved checklist and standard plan.

One consolidated inspection will be required and performed by the Building Division. To the extent possible, an inspection will be scheduled within two (2) business days of a request and a two (2) hour inspection window will be provided by the city.