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|   | <b>CITY OF MISSION VIEJO</b><br>BUILDING DIVISION<br>200 CIVIC CENTER<br>MISSION VIEJO, CA 92691<br>949 470-3054<br><a href="http://www.cityofmissionviejo.org">www.cityofmissionviejo.org</a> | <b>2016 CALIFORNIA CODES</b><br><small>CODE CYCLE</small> |
|  |  | <b>01/01/2017</b><br><small>EFFECTIVE DATE</small>        |
| <b>Submittal Requirements Bulletin – Solar Photovoltaic Installations 10 kW or Less in One- and Two-Family Dwellings</b> |  |   |

This information bulletin is published to guide applicants through a streamlined permitting process for solar photovoltaic (PV) projects 10 kW in size or smaller. This bulletin provides information about submittal requirements for plan review, required fees and inspections.

## 1. Approval Requirements

The following permits are required to install a solar PV system with a maximum power output of 10 kW or less:

- a) A building permit is required.

## 2. Submittal Requirements

- a) One copy of the completed permit application form specifying the kilowatts, number of modules, inverters or micro-inverters, disconnects, circuits, lineal feet of conduit and the electric utility company. This permit application form can be downloaded from our departmental website at [www.cityofmissionviejo.org](http://www.cityofmissionviejo.org).
- b) Demonstrate compliance by completing the eligibility checklist for expedited permitting. These criteria can be downloaded at [www.cityofmissionviejo.org](http://www.cityofmissionviejo.org).
- c) Three copies of a completed Standard Electrical Plan. The standard plan may be used for proposed solar installations 10 kW in size or smaller and can be downloaded at [www.cityofmissionviejo.org](http://www.cityofmissionviejo.org).
  - *If standard electrical plans are not provided for use, an electrical plan should be submitted that includes the following.*
  - *Locations of main service or utility disconnect*
  - *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 and wind generators*
  - *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 and the distance from property lines to adjacent buildings/structures (existing and proposed)*
  - *Certificate of Compliance that the solar system has been tested by an approved testing agency. (Authorization to mark is not a Certificate of Compliance)*
- d) Three copies of a roof plan showing roof layout, PV panels and the following fire safety items: approximate location of roof access point, location of code-compliant access pathways, PV system fire classification and the locations of all required labels and markings. Examples of clear path access pathways are available in the State Fire Marshal Solar PV Installation Guide.  
<http://osfm.fire.ca.gov/pdf/reports/solarphotovoltaicguideline.pdf>.
- e) One copy of the completed expedited Structural Criteria along with required documentation. Structural Criteria can be downloaded at [www.cityofmissionviejo.org](http://www.cityofmissionviejo.org)
- For non-qualifying systems, provide structural drawings and calculations stamped and signed by a Registered California-licensed Civil or Structural Engineer, along with the following information.
- 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
  - Site-specific structural calculations
  - Where an approved racking system is used, provide documentation showing manufacture 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
- f) One copy of the executed **Home Owner Awareness Form** to qualify for the Energy Efficiency Fee Waiver program (EEFW). See Fees in item 4 below. **THIS FORM MUST BE SUBMITTED AT TIME OF THE INITIAL SUBMITTAL TO QUALIFY!** This form will not be accepted after the initial submittal.

### 3. Plan Review

Permit applications are submitted in person to the Building Division at City of Mission Viejo.

Permit applications utilizing standard plan may be approved “over the counter” at the Building Division.

Permits not approved “over the counter” should be reviewed within 3 working days from the date of the initial submittal. Re-submittals are reviewed over the counter.

## 4. Fees

As part of the Energy Efficiency Fee Waiver program (EEFW) residential solar plan review and permit fees may be waived with the submittal of the executed Home Owner Awareness form at the time of the initial submittal. This form will only be accepted upon the initial submittal. Applications submitted without this form will be subject to the customary plan check fee of \$132 and \$188.00 inspection fee with additional electrical and administrative fees.

## 5. Inspections

Once all permits to construct the solar installation have been issued and the system has been installed, a final inspection for the solar system may be scheduled by contacting the Building Division by telephone at (949) 222-4694. Inspection requests are typically scheduled for the next business day.

The following is required:

- Ladders shall be OSHA approved and secured to the structure for inspection purposes.
- Contractors must be present for all inspections.

Permit holders must be prepared to show conformance with all technical requirements in the field at the time of inspection. The inspector will verify that the installation is in conformance with applicable code requirements and with the approved plans.

The inspection checklist provides an overview of common points of inspection that the applicant should be prepared to show compliance. If not available, common checks include the following.

- Number of PV modules and model number match 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 environment.
- All electrical panels, disconnects, inverters and junction boxes shall be opened for inspection.
- Array is fastened and sealed according to attachment detail.
- Conductors ratings and sizes match plans.
- Appropriate signs are properly constructed, installed and displayed, including but not limited to the following:
  - Sign identifying PV power source system attributes at DC disconnect
  - Sign identifying AC point of connection
  - Sign identifying switch for alternative power system
  - Signs written with markers are not acceptable.
- Equipment ratings are consistent with application and installed signs on the installation, including the following.

- 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).
- 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 bus bar rating.

## 6. Jurisdictional Notes

The following notes shall be printed in each set submitted for Building Division for plan check and approval. All notes shall be verbatim and are not to be excluded or altered.

- “Residential Roof mounted photovoltaic systems shall be installed in accordance with the manufactures specifications and the 2016 California Residential Code, 2016 California Electrical code and 2016 California Fire Code.*
- “Contractor shall be present during all inspections.”*
- “The roof access point requiring a ladder shall not be located over a window, door or located where it conflicts with overhead obstructions such as tree limbs, wires or signs.” CRC R324.7.1.*
- “A ladder shall be provided and secured to the structure at the approved roof access point per note “c” above with a Cal OSHA approved device during all inspections”*
- “Applications for a photovoltaic system proposing a partial or complete re-roof of the existing roof shall first obtain a separate building permit for such work from the Building Division by a California licensed (C-39) contractor and shall pass a final inspection prior to installation of the photovoltaic mounting and/or rail system.”*
- “A separate permit will be required for the main service panel upgrade. A utility company meter spot or work order shall be submitted to the Mission Viejo Building Division prior to permit issuance”*
- “Photovoltaic Installations proposing a main service panel (MSP) upgrade shall not be inspected without first obtaining a separate electrical permit for the MSP.*
- “Final inspections for both the panel upgrade and the photovoltaic system shall be conducted concurrently”*
- “Electrical permits for MSP upgrades require three inspections including a rough electrical inspection, lath inspection and final inspection.*
- “Direct-Current Photovoltaic Source and Direct-Current Output Circuits on or inside a building shall be contained in a metal raceway. The wiring methods*

*shall comply with the additional installation requirements of CEC 690.31 (G)(1) through (4)” CEC 690.31 (G)*

- k. *“Where a UFER cannot be verified or is not present one supplementary ground electrode shall be installed and embedded a minimum of 8 feet into the ground and fitted with a listed clamping device.”*
- l. *“Existing roof and plumbing vents shall not be obstructed by array installation. Plumbing vents shall terminate a minimum of 6 inches above the roof line.”*

## **7. Departmental Contact Information**

For additional information regarding this permit process, please consult the city of Mission Viejo's Building Division's website page at [www.cityofmissionviejo.org](http://www.cityofmissionviejo.org) or contact Building Division at (949) 470-3054.