

Marin's *e-Inspection* Program for Energy Efficiency

BAY AREA REGIONAL ENERGY NETWORK FORUM

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County of Marin



Photo Credit: Jeff Wong



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Voluntary photo-inspection for licensed contractors

19.04.045(3) MARIN COUNTY CODE (ORD NO. 3619, 2014)

- Local building permitting program to facilitate the timely installation of private residential solar systems
 - Improved workflow for installers translates to increased installation efficiency and productivity
- Increased efficiency for building permit staff
 - Inspection time savings due to eliminating drive time means lower permit fees for the customer
- Reduced carbon emissions and traffic congestion aligns with Marin's Countywide Plan
 - Leveraging 21st Century technology to provide more sustainable service



Step 1

- Complete the **voluntary Contractor's Permit Application with e-Inspection**

COUNTY OF MARIN

COMMUNITY DEVELOPMENT AGENCY
BUILDING AND SAFETY DIVISION

CONTRACTOR'S PERMIT APPLICATION for Residential PV Installation with e-Inspection
CA Health and Safety Code Section 19825 V 11-10-12 6p2s H:2012 Permit Mastersly 11-10-12 e-Inspection Residential PV Installation Application.doc

Permit # _____ Issued Date: _____

<u>System Design</u>	<u>Utility Connection</u>	<u>Array Location</u>	<u>Mounting System</u>
<input type="checkbox"/> Central Inverter	<input type="checkbox"/> Meter Panel Buss	<input type="checkbox"/> Roof Mount	<input type="checkbox"/> Flush
<input type="checkbox"/> Micro-Inverter	<input type="checkbox"/> Supply-side Tap	<input type="checkbox"/> Ground Mount	<input type="checkbox"/> Elevated Rack
<input type="checkbox"/> AC Module	<input type="checkbox"/> Other _____		
<input type="checkbox"/> Other _____			

Does this PV system utilize storage batteries? YES NO

Are other alternative energy systems at this site? YES NO
If so, please describe:



Step 2

- Follow the directions within the application package for reviewing applicable code requirements

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Directions for using this electronic Inspection Residential PV Installation Permit Program

1. **Obtain permit** and **Residential PV e-Inspection Compliance and Certification Form** from Marin County Community Development Agency – Building and Safety Division prior to starting work.
 - a. Completed permit application, permit fee payment* and plans conforming to **Minimum Mandatory PV Plans Checklist** may be submitted in-person, by mail or by email.
**We currently only accept cash or check submitted in person or via mail*
2. **Review the Code requirements** in the **Residential PV Installation Code Reference Guide** that are applicable to your PV project prior to starting construction.
3. Using your smart phone, smart device or digital camera **photograph or video the existing installation location** before any work has begun.
4. Using your **e-Inspection Compliance and Certification Form** as your guide:
 - a. **Perform each inspection** as soon as the corresponding work has been performed to ensure each applicable code and/or manufacturer's requirement is satisfied.
 - b. **Photograph/video each inspection** you perform to establish clear evidence that each corresponding code and/or manufacturer's requirement is satisfied. **Email each photograph/video to buildinginspection@marincounty.org** as soon as you take it. **CDA-Building & Safety will catalog each photo/video to your permit file.**
 - c. **Initial each inspection** on your **e-Inspection Compliance and Certification Form** to certify you performed the inspection and that the work performed complies with the applicable code and/or manufacturer's requirement. **NOTE: Write NA in the initialing space for any inspection provision that is not applicable to your PV installation scope of work.**



Step 3

- Using a smart phone or digital camera, photograph all aspects of construction work throughout progress –with special emphasis on each self-inspection for code compliance



Step 4

- Photograph the front and back of the **completed** Permit Compliance and Certification Form

MARIN COUNTY COMMUNITY DEVELOPMENT AGENCY - BUILDING & SAFETY DIVISION

CONTRACTOR'S e-Inspection Compliance and Certification Form

Residential PV INSTALLATION PERMIT with e-Inspection

IMPORTANT! Completion and substantial of this form is required in order to pass inspections and finalize this permit. Incomplete or non-legible forms will not be accepted by Marin County CDA - Building & Safety.

Directions: Please verify, complete, and initial each item below before you sign and photograph this form or was N/A if the provision is not required or applicable to this permit.

- I certify the general installation of this PV system complies with: 1) the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div I; 2) manufacturer's specifications for each product installed under the provisions of this permit; and 3) complies with Fire Protection Standard 523 for maintaining access to fireways, brush clearance, conduit marking and protection of emergency responders.
- I certify PV circuit requirements comply with: 1) the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div II; and 2) manufacturer's specifications for each product installed under the provisions of this permit.
- I certify disconnecting means installed for this PV system comply with: 1) the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div III; 2) manufacturer's specifications; and 3) Fire Protection Standard 523 for locations.
- I certify wiring methods for this PV installation: 1) comply with the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div IV; 2) are installed and identified in a neat manner suitable for the environment; and 3) comply with Fire Protection Standard 523 for shortest path and layout along roof lines.
- I certify equipment and PV system grounding is continuous and comply with the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div V.
- I certify identification, marking and signage of this PV system installation complies with the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div VI; as well as Fire Protection Standard 523 for conduits, disconnects, switches, electrical panel and DC power source; and accurately reflect equipment and component ratings.
- I certify connection to other sources for this PV installation complies with the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div VII.
- I certify storage batteries (if applicable) for this PV installation complies with the approved plans and applicable sections of 2010 CA Elec Code Art 690 Div VIII.

I hereby affirm under penalty of perjury by my signature below, I have: 1) reviewed and satisfied all applicable Code requirements contained within this permit application and the Residential PV Installation Code Reference Guide; and 2) inspected and verified each of the provisions enumerated above prior to my certifying their compliance with my initials.

California Licensed Contractor of Record for this e-Inspection PERMIT NUMBER: 139358
Date: 8/30/13

H 2012 Permit Manual 11.10.12 PV Installation Permit & Compliance Form



Step 5

- **Email all photos to the building jurisdiction for review, verification and approval to finalize the building permit**



Installers and Inspectors Benefit from:

- ✓ Time savings
- ✓ Lower costs
- ✓ Readily available technology
- ✓ Reduced environmental impacts
- ✓ Freedom of self-service
- ✓ Supports competitive edge for licensed contractors

Lessons Learned so far:

- Paradigm shift –takes time to catch on
- Will benefit from ongoing customer feedback loop
- Fire department support important for greatest effectiveness
- Self service using technology applicable to many permit types



Looking Forward

THE FUTURE OF BUILDING INSPECTION

- Greater use of technology for core business
- More self-service options for permit customers
- Certification in lieu of site inspection



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