



# BUILDING DIVISION – DPW

COUNTY OF HAWAI'I – 101 Pauahi Street, Suite 7 – Hilo, Hawai'i 96720  
Hilo Office (808) 961-8331 • Fax (808) 961-8410 Kona Office (808) 323-4720 • Fax (808) 327-3509

## STRUCTURAL EVALUATION WORKSHEET

This worksheet, to be completed by the applicant, is required for residential PV system applications. If the drawings are prepared and stamped by a Hawai'i registered professional architect or structural engineer, then the worksheet is not required. The installation of a roof mounted PV system can be complex and it is recommended (but not required) that the structure be reviewed by a registered professional architect or structural engineer.

### STEP 1: Structural Evaluation of a Supporting Building

Is the array to be roof mounted on a permitted structure  YES  NO

If "YES" insert the PERMIT NUMBER \_\_\_\_\_ YEAR BUILT \_\_\_\_\_

If "NO" STOP. A building permit for the structure is required.

**Effective Wind Speed** \_\_\_\_\_ mph

(To determine Effective Wind Speed view the map at: <http://media3.hawaii.gov/media/dags/web/windmaps/hawaii-county-wind-maps.pdf>, information on page 58 to 84 (PDF, 22 MB))

**Wind Exposure Category (ref. R301.2.1.4)** \_\_\_\_\_

(To view R301.2.1.4 of the IRC go to: [http://publicecodes.cyberregs.com/icod/irc/2012/icod\\_irc\\_2012\\_3\\_sec001\\_par009.htm](http://publicecodes.cyberregs.com/icod/irc/2012/icod_irc_2012_3_sec001_par009.htm)  
To view the map, go to: <http://media3.hawaii.gov/media/dags/web/windmaps/hawaii-county-wind-maps.pdf> (PDF, 22 MB))

**Seismic Design Category (ref. Figure 301.2(2))** \_\_\_\_\_

(To view Figure 301.2(2) go to: <http://earthquake.usgs.gov/hazards/designmaps/pdfs/?code=IRC&edition=2006+%26+2009>)

### Roof Information:

Roof construction  Rafters  Site Built Trusses  Pre- Engineered Trusses  
 Open Beam  Other

Does the roof have a single covering?  YES  NO

1. Provide method and type of weather-proofing roof penetrations \_\_\_\_\_.
2. Describe rafter, truss system, or open beam roof framing
  - a. Size \_\_\_\_\_ x \_\_\_\_\_ inches.
  - b. Spacing \_\_\_\_\_ inches.
  - c. Maximum unsupported span: \_\_\_\_\_ feet, \_\_\_\_\_ inches.
  - d. Are the rafter spaces acceptable? (see Guidelines for Permitting a Residential PV System, Span Tables)  YES  NO
  - e. If "YES" complete Step 2. If "NO" additional information is required to determine the structural integrity of the dwelling.

- A) Attach the completed structural evaluation worksheets for review.
- B) Include two sets of drawings of site plans stamped by an electrical engineer in accordance with HRS section 444<sup>1</sup>, and product submittals as required.
- C) Complete the building permit worksheet, and electrical permit application.

<sup>1</sup> Under the Hawai'i Revised Statutes section 444 permits are issued to Hawai'i State licensed building, electrical, or photovoltaic contractors.

## STEP 2: Structural Evaluation Worksheet of a Residential PV Array Mounting System

If any of the answers are “NO” STOP. The installation will require additional information.

**Mounting System Information** (See Guidelines for Permitting a Residential PV System, Exhibit A):

1. Is the mounting structure for a preapproved County of Hawai‘i or an ICC preapproved engineered product designed to mount PV modules?

YES     NO

*If “YES” continue to step 2.*

*If “NO” STOP. The system must be submitted with USA testing data to determine suitability for seismic and wind zones within the County of Hawai‘i.*

2. For manufactured mounting systems, fill out information on the mounting system below:

a. **Mounting system** Manufacturer: \_\_\_\_\_

**Mounting system** Product name: \_\_\_\_\_

**Mounting system** Model # \_\_\_\_\_

**Mounting system** Listing # (e.g., ICC) \_\_\_\_\_

b. Distance between rails \_\_\_\_\_

c. Maximum panel overhang \_\_\_\_\_

d. Total weight of PV modules, and rails \_\_\_\_\_ lbs.

e. Total number of attachment points \_\_\_\_\_.

f. Weight per attachment point (d÷e) \_\_\_\_\_ lbs.

g. Maximum spacing between attachment points on rail \_\_\_\_\_ (see product manual for maximum spacing allowed based on maximum design wind speed).

h. Total surface area of PV modules (sq ft) \_\_\_\_\_ ft<sup>2</sup>

i. Distributed weight of PV module on roof (d÷h) \_\_\_\_\_ lbs/ft<sup>2</sup>

*If distributed weight of the PV system is greater than 5lbs/ft<sup>2</sup> then structural improvements are required for this installation.*

Please submit a worksheet with each set of plans.

I HEREBY ACKNOWLEDGE THAT THE INFORMATION GIVEN ON THIS FORM IS CORRECT AND AGREE TO COMPLY WITH ALL COUNTY AND STATE LAWS.

\_\_\_\_\_  
PERMITTEE’S SIGNATURE

\_\_\_\_\_  
DATE

TMK (3) \_\_\_\_\_