

# Structural Criteria for Residential Rooftop Solar Energy Installations



Community Development Department

## STRUCTURAL CRITERIA FOR RESIDENTIAL FLUSH-MOUNTED SOLAR ARRAYS

### 1. ROOF CHECKS

#### A. Visual Review/Contractor's Site Audit of Existing Conditions:

- 1) Is the roof a single roof without a reroof overlay?  Y  N
- 2) Does the roof structure appear structurally sound, without signs of alterations or significant structural deterioration or sagging, as illustrated in Figure 1?  Y  N

#### B. Roof Structure Data:

- 1) Measured roof slope (e.g. 6:12): \_\_\_\_\_:12
- 2) Measured rafter spacing (center-to-center): \_\_\_\_\_ inch
- 3) Type of roof framing (rafter or manufactured truss):  Rafter  Truss

### 2. SOLAR ARRAY CHECKS

#### A. Flush-mounted Solar Array:

- 1) Is the plane of the modules (panels) parallel to the plane of the roof?  Y  N
- 2) Is there a 2" to 10" gap between underside of module and the roof surface?  Y  N
- 3) Modules do not overhang any roof edges (ridges, hips, gable ends, eaves)?  Y  N

#### B. Do the modules plus support components weigh no more than:

4 psf for photovoltaic arrays or 5 psf for solar thermal arrays?  Y  N

#### C. Does the array cover no more than half of the total roof area (all roof planes)?

Y  N

#### D. Are solar support component manufacturer's project-specific completed worksheets, tables with relevant cells circled, or web-based calculator results attached?

Y  N

#### E. Is a roof plan of the module and anchor layout attached? (see Figure 2)

Y  N

#### F. Downward Load Check (Anchor Layout Check):

- 1) Proposed anchor horizontal spacing (see Figure 2): \_\_\_\_\_' - \_\_\_\_\_"ft-in
- 2) Horizontal anchor spacing per Table 1: \_\_\_\_\_' - \_\_\_\_\_"ft-in

3) Is proposed anchor horizontal spacing equal to or less than Table 1 spacing?  Y  N

#### G. Wind Uplift Check (Anchor Fastener Check):

- 1) Anchor fastener data (see Figure 3):
- a. Diameter of lag screw, hanger bolt or self-drilling screw: \_\_\_\_\_ inch
- b. Embedment depth of rafter: \_\_\_\_\_ inch
- c. Number of screws per anchor (typically one): \_\_\_\_\_
- d. Are 5/16" diameter lag screws with 2.5" embedment into the rafter

used, OR does the anchor fastener meet the manufacturer's guidelines?  Y  N

### 3. SUMMARY

- A. All items above are checked YES. No additional calculations are required.
- B. One or more items are checked NO. Attach project-specific drawings and calculations stamped and signed by a California-licensed civil or structural engineer.

Job Address: \_\_\_\_\_ Permit #: \_\_\_\_\_  
Contractor/Installer: \_\_\_\_\_ License # & Class: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Phone #: \_\_\_\_\_