CITY of MODESTO

1010 Tenth Street Modesto CA 95354

SUBMITTAL REQUIREMENTS FOR EXPEDITED SOLAR PERMITTING

All forms available at www.modestogov.com/development/forms

- ☐ **Completed permit application**
- ☐ **Demonstrate compliance with "Eligibility Checklist For Expedited Permitting" checklist**
- ☐ **Provide three copies of plans showing:**
  - **Location 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**
  - **Grounding/bonding, conductor type and size, conduit type and size and number of conductors in each conduit**
  - **Equipment cut sheets including inverters, modules, AC and DC disconnects, and combiners**
  - **Labeling of equipment as required by CEC sections 690 and 705**
- ☐ **Roof plan showing:**
  - **Roof layout**
  - **PV panels**
  - **Approximate location of roof access points**
  - **Location of code-compliant access pathways**
  - **PV system fire classification**
  - **Locations of all required labels and markings**
- ☐ **Completed "Structural Criteria for Residential Roof-Mounted Solar Arrays" checklist**
  - **For non-qualifying systems, provide structural drawings and calculations stamped and signed by a California licensed Engineer or Architect**
- ☐ **Fees**
  - **Visit www.modestogov.com/development/fees for updated fee information**

Electronic Submittal Requirements

- ☐ **PDF file of permit application**
- ☐ **PDF file of "Eligibility Checklist For Expedited Permitting" checklist**
- ☐ **PDF file of plans listed above**
- ☐ **PDF file of "Structural Criteria**
- ☐ **PDF file of completed permit application**
- ☐ **Email all PDF files to permits@modestogov.com**
- ☐ **Email and all attachments must be less than 10 Mb**

Job Address: _____ Permit #: _____

Contractor/Installer: _____ License # & Class: _____

Signature: _____ Date: _____ Phone #: _____

CITY of MODESTO
1010 Tenth Street Modesto CA 95354

Building Safety, 1010 Tenth Street, Suite 3100, P.O. Box 642, Modesto, CA 95353 (209) 577-5232

ELIGIBILITY CHECKLIST FOR EXPEDITED SOLAR PERMITTING

This checklist must be completed by the contractor or an authorized agent of the contractor in order to determine if the roof top solar project is eligible for expedited solar permitting.

GENERAL REQUIREMENTS:

System size is 10 kW AC CEC rating or less.	YES ☐ NO ☐
The solar array is roof-mounted on one- or two-family dwelling.	YES ☐ NO ☐
The solar system is utility interactive and without battery storage.	YES ☐ NO ☐
Installation of the system will not require any excavation more than 10 feet from the structure the solar panel/module arrays are mounted on.	YES ☐ NO ☐
A minimum clear space of three feet is provided on the control side of roof mounted HVAC equipment.	YES ☐ NO ☐

ROOF REQUIREMENTS:

The roof has a single roof covering without a reroof overlay.	YES ☐ NO ☐
Has the roof structure been verified to be structurally sound, without signs of alterations or significant structural deterioration or deflection?	YES ☐ NO ☐

FIRE SAFETY REQUIREMENTS:

Access pathways at least three feet in width are provided on gable roofs from the eave to the ridge. Panels shall be located at least 18 inches from a hip or valley if located on both sides of a hip or valley.	YES ☐ NO ☐
Access pathways at least three feet in width are provided between multiple arrays.	YES ☐ NO ☐
To allow for smoke ventilation there is a minimum of three feet between the ridge and the panels.	YES ☐ NO ☐
There are no conductors within the three foot area between the panels and the ridge	YES ☐ NO ☐
The panel fire classification is provided and meets the rating required for the structure.	YES ☐ NO ☐
The plans include a sheet showing the location and verbiage of the required labels	YES ☐ NO ☐

SOLAR ARRAY REQUIREMENTS:

Is the distance between the underside of modules and the roof surface at least two inches but not greater than 10 inches?	YES ☐ NO ☐
Is the plane of the modules (panels) parallel to the plane of the roof?	YES ☐ NO ☐
The layout of the modules is designed to not overhang any ridges, hips, gable ends and eaves.	YES ☐ NO ☐
Has the weight of the modules plus support components been verified to weigh no more than: 4 psf for photovoltaic arrays or 5 psf for solar thermal arrays?	YES ☐ NO ☐
Are the support component manufacturer's project-specific worksheets and tables completed with relevant information identified?	YES ☐ NO ☐
Is a roof plan of the module and anchor layout included in the plans?	YES ☐ NO ☐

ELECTRICAL REQUIREMENTS:

No more than four photovoltaic module strings are connected to each Maximum Power	YES ☐ NO ☐
Point Tracking (MPPT) input where source circuit fusing is included in the inverter.	YES ☐ NO ☐
No more than two strings per MPPT input where source circuit fusing is not included.	YES ☐ NO ☐

Fuses (if needed) are rated to the series fuse rating of the PV module.	YES ☐ NO ☐
No more than one noninverter-integrated DC combiner is utilized per inverter.	YES ☐ NO ☐
For central inverter systems: No more than two inverters are utilized.	YES ☐ NO ☐
The PV system is connected to the load side of the utility distribution equipment.	YES ☐ NO ☐
A Solar PV Standard Plan and supporting documentation is completed and attached.	YES ☐ NO ☐

NOTES and OTHER INFORMATION:

1. Clearly illustrate with dimensions, required Fire Department setbacks at ridge, valley and eave roof lines.
2. Provide a detailed legend denoting all vents stacks, mechanical vents, B-vents, fire places, cupola's , dormers , etc.
3. Plot plan shall be min scale of 1:10.
4. Provide a one line diagram illustrating disconnects, AC/DC, wiring sizing, panel size. Hot tap, Side line taps.
5. Size of existing service main ☐ 200 amp ☐ 125 amp ☐ 100 amp ☐ other please specify _____
6. Will the service main be upgraded and / or replaced? Yes ☐ No ☐
   What size will the new service be? ☐ 200 amp ☐ 125 amp ☐ 100 amp ☐ other please specify _____
7. Is there a pool or other electrical demands other than the residence? Yes ☐ No ☐ (Electrical Load Calculations will be required when there is a pool or other demands with less than 200 amp main)
8. Are any mechanical or plumbing vents proposed to be covered? Yes ☐ No ☐
9. Are smoke detectors installed in home and verified in working condition Yes ☐ No ☐
10. Are carbon monoxide alarms installed in home and verified in working condition Yes ☐ No ☐
11. Table is based on the following assumptions:
    - ·The roof structure conformed to building code requirements at the time it was built.
    - ·Mean roof height is not greater than 40 feet.
    - ·Roof sheathing is at least 7/16" thick oriented strand board or plywood. 1x skip sheathing is acceptable.
    - ·If the dwelling is in Wind Exposure B (typical urban, suburban or wooded areas farther than 500 yards from large open fields, no more than one of the following conditions apply:
      - ·The dwelling is located in a special wind region with design wind speed between 115 and 130 mph per ASCE 7-10, or
      - ·The dwelling is located on the top half of a tall hill, provided average slope steeper is less than 15%.
12. If the dwelling is In Wind Exposure C (within 500 yards of large open fields or grasslands), all of the following conditions apply:
    - ·Design wind speed is 110 mph or less (not in a Special Wind Region), and
    - ·The dwelling is not located on the top half of a tall hill.
13. The solar array displaces roof live loads (temporary construction loads) that the roof was originally designed to carry.

SUMMARY FOR ELIGIBILTY CHECKLIST:

If any items are checked NO, the project is not eligible for expedited solar permitting and must go through the standard application process.

AGREEMENT:

As the responsible contractor or authorized agent for the project I understand that I am responsible for the accuracy of all information provided in this application. I also understand that revisions to this project will result in a revised application and plan review submitted to the building department which will not be eligible for expedited solar permit issuance.

Job Address: _____ Permit #: _____

Contractor/Installer: _____ License # & Class: _____

Signature: _____ Date: _____ Phone #: _____

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STRUCTURAL CRITERIA FOR RESIDENTIAL ROOF-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

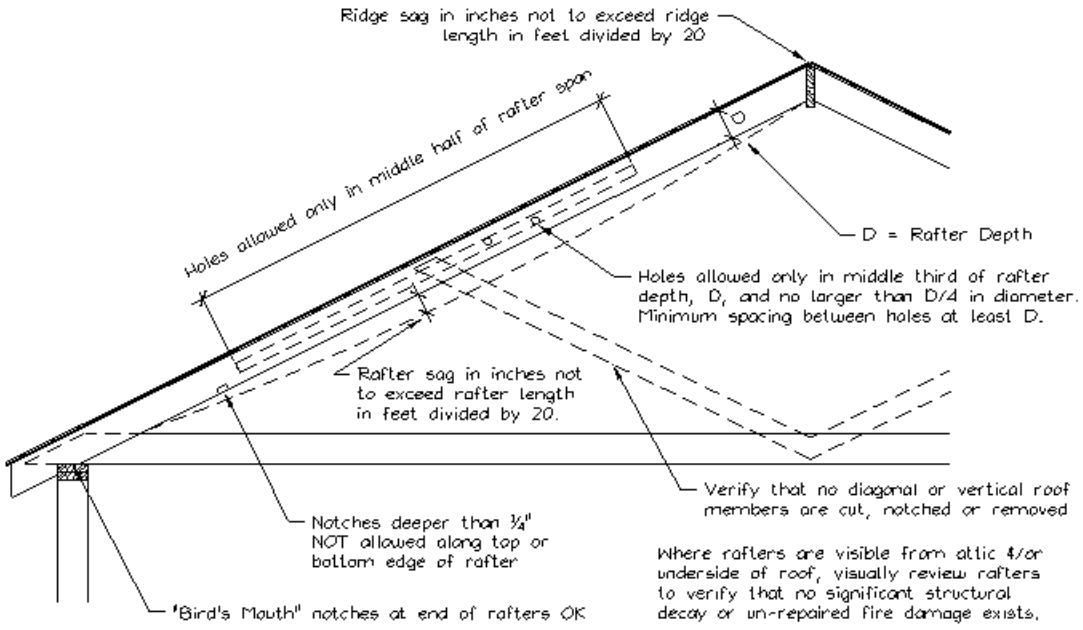

Figure 1. Sample Solar Panel Array and Anchor Layout Diagram (Roof Plan).

The site auditor should verify the following:

1. No visually apparent disallowed rafter holes, notches and truss modifications as shown above.
2. No visually apparent structural decay or un-repaired fire damage.
3. Roof sag, measured in inches, is not more than the rafter or ridge beam length in feet divided by 20.

Rafters that fail the above criteria should not be used to support solar arrays unless they are first strengthened.

B. Roof Structure Data:

1) Measured roof slope (e.g. 4:12): _____:12

2) Measured rafter/truss spacing (center-to-center) _____inches

3) Type of roof framing (rafter or manufactured truss) ☐ Rafter ☐ Truss

4) Roofing Material ☐ Tile ☐ Comp ☐ Other_____

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

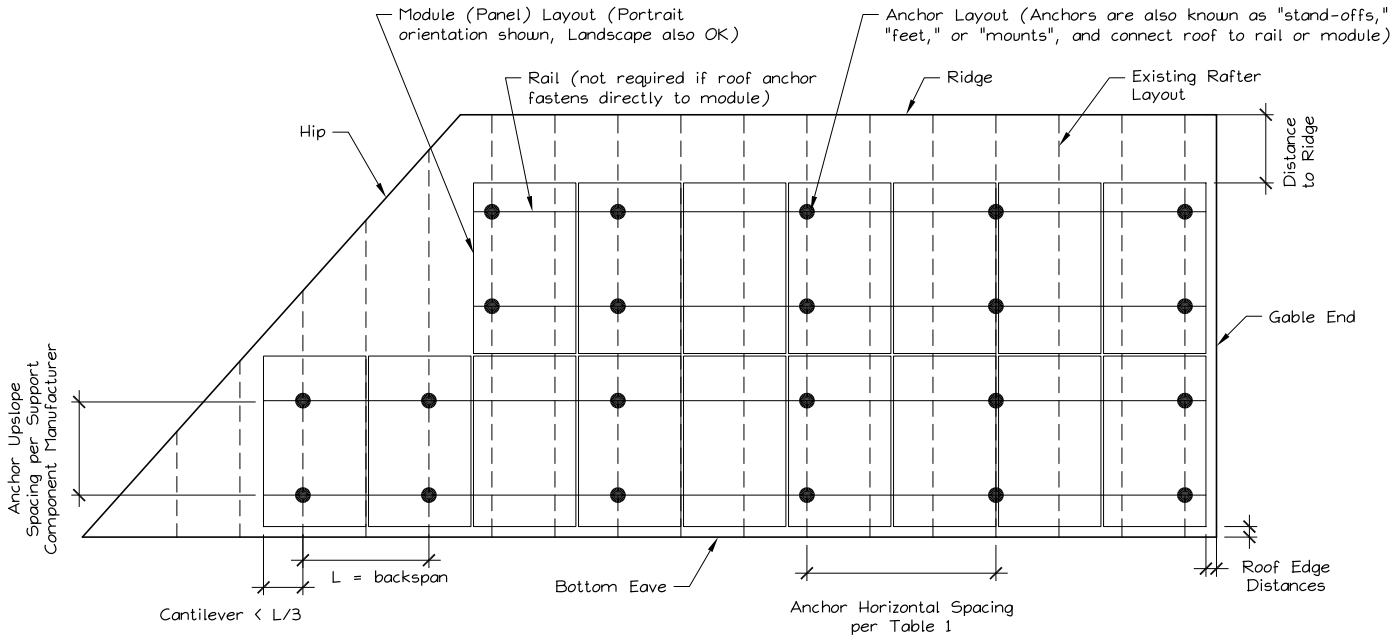

Figure 2. **Sample Solar Panel Array and Anchor Layout Diagram (Roof Plan).**

Table 1. Maximum Horizontal Anchor Spacing				
Roof Slope		Rafter Spacing		
		16” o.c.	24” o.c.	32” o.c.
Photovoltaic Arrays (4 psf max)				
Flat to 6:12	0° to 26°	5’-4”	6’-0”	5’-4”
7:12 to 12:12	27° to 45°	1’-4”	2’-0”	2’-8”
13:12 to 24:12	46° to 63°	1’-4”	2’-0”	2’-8”
Solar Thermal Arrays (5 psf max)				
Flat to 6:12	0° to 26°	4’-0”	4’-0”	5’-4”
7:12 to 12:12	27° to 45°	1’-4”	2’-0”	2’-8”
13:12 to 24:12	46° to 63°	Calc. Req’d	Calc. Req’d	Calc. Req’d

Table 1 Notes:

1. Anchors are also known as “stand-offs,” “feet,” “mounts” or “points of attachment.” Horizontal anchor spacing is also known as “cross-slope” or “east-west” anchor spacing (see Figure 2).
2. If anchors are staggered from row-to-row going up the roof, the anchor spacing may be twice that shown above, but no greater than 6’-0”.
3. For manufactured plated wood trusses at slopes of flat to 6:12, the horizontal anchor spacing shall not exceed 4’-0” and anchors in adjacent rows shall be staggered.
4. This table is based on the following assumptions:
   - The roof structure conformed to building code requirements at the time it was built.
   - Mean roof height is not greater than 40 feet.
   - Roof sheathing is at least 7/16” thick oriented strand board or plywood. 1x skip sheathing is acceptable.
   - The solar array displaces roof live loads (temporary construction loads) that the roof was originally designed to carry.
   - The Structural Technical Appendix provides additional information about analysis assumptions (http://opm.ca.gov/docs/solar_technical_appendix.pdf)

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

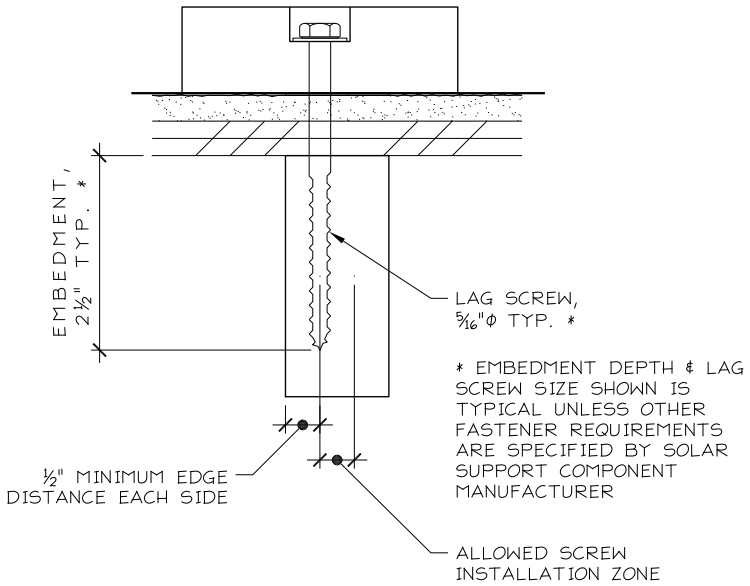

Figure 3. Typical Anchor with Lag Screw Attachment.

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 #: _____