



RESIDENTIAL SOLAR ELECTRICAL SYSTEM- PERMIT SUPPLEMENTAL

Before approval and issuance of permit(s) for Solar Panel/Photovoltaic systems, a building permit application must be submitted along with all information requested including the information in this permit supplemental.

REQUIRED DOCUMENTS. (DETAILS OF SUBMITTALS ARE PROVIDED IN THIS SUPPLEMENT.)

- 1. Building Permit Application.
- 2. Electrical Permit Application (may be submitted prior to construction).
- 3. Site Plan.
- 4. Construction drawings including elevations. (Provide roof load and hardware uplift calculations.)
- 5. Manufacturer specifications.
- 6. Photos showing the condition of the roof.
- 7. If required, study from licensed Engineer.
- 8. A drawing showing the layout of the solar panels on the roof. If there are tracks, a separate drawing showing the layout of the tracks.

I. SITE AND CONTACT INFORMATION

Site Address _____ Date of Application _____

Property Owner Name _____

Contractor Information

Company Name _____

Address _____

City _____ State _____ Zip Code _____

Company Phone _____ License No. _____

Contact Person _____ Email _____

II. SOLAR SYSTEM INFORMATION

1. Provide the name brand and model of the solar panels. _____

2. What is the system's Kilowatt rating (DC)? _____

3. Type of System: Inter-tie _____ Stand Alone _____

4. Does the system include battery backup or an Uninterrupted Power Supply (UPS)? Yes No

If yes, provide the number, size and location of the batteries . _____

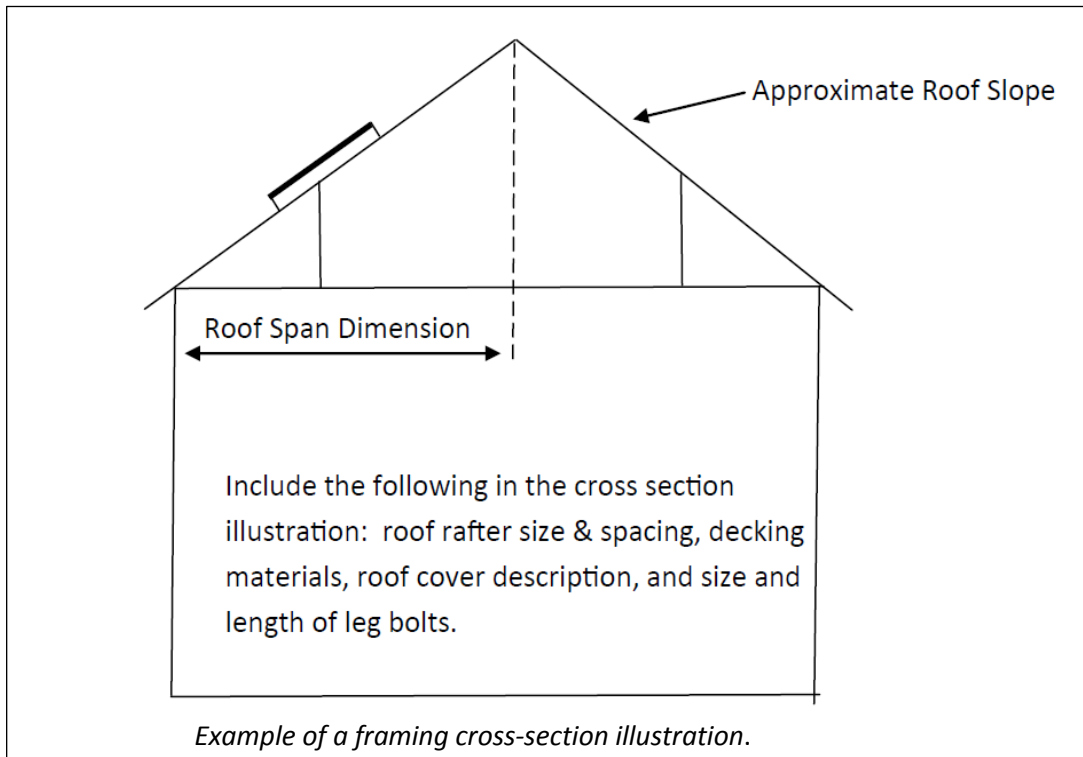
5. If roof mounted, identify type of roof. Flat Roof _____ Sloped _____ Roof Pitch _____

6. Describe roofing materials, condition of roof and approximate age (shingles, tile, metal, ballasted, membrane). _____

7. Solar panels may not be allowed on existing roofs with two layers of shingles. Please indicate the number of roofing layers on existing roof. _____
8. Provide calculations that show the hardware used to secure the panels are able to handle the manufacture uplift values.
9. If staked to the ground, submit staking and grounding information.

III. REQUIRED DRAWINGS AND PLANS FOR RESIDENTIAL SOLAR ELECTRIC SYSTEM

Provide construction drawings that include a building section detail and complete notation of method of fastening equipment to the roof of the subject property, including the following details. Required drawings must be scaled, dimensioned and legible.



1. Cross section that identifies rafter size, spacing and span dimension and approximate roof slope. (See example above.)
2. Identify style, diameter, and length of embedment of bolts (i.e. 5/16 inch lags with minimum 3 inch embedment into framing, blocking or bracing).
Construction drawings included?

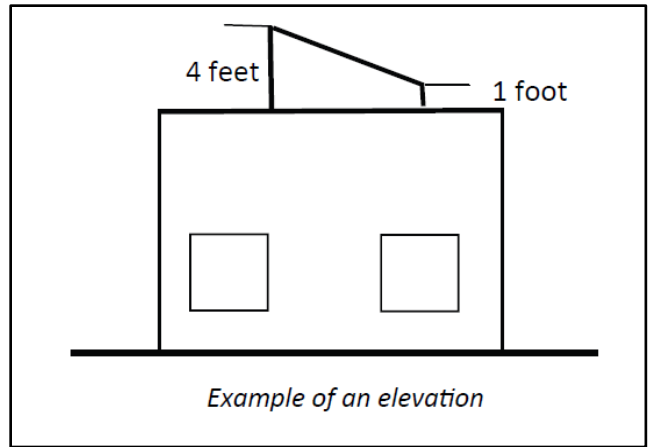
Construction drawings included?

Yes No

3. Provide manufacturer specification materials for all equipment, fasteners, etc.
4. Provide an **elevation** of the structure indicating the appearance of the proposed solar installation. Note the finished height of the system above the roof or, if ground - mounted, above the ground.

a. Elevation drawing included?

Yes No



5. Provide a **site plan** indicating the buildings and features of the property. The site plan must show property line locations, approximate location of all structures, the location(s) of the panel installations, setback from property lines, the main service location, and, if applicable, the solar easement across adjoining properties. For roof-mounted systems identify the setback dimension from the peak and from all edges of the roof. An on-site inspection may be required. Property line setbacks must be verified by the owner or contractor.

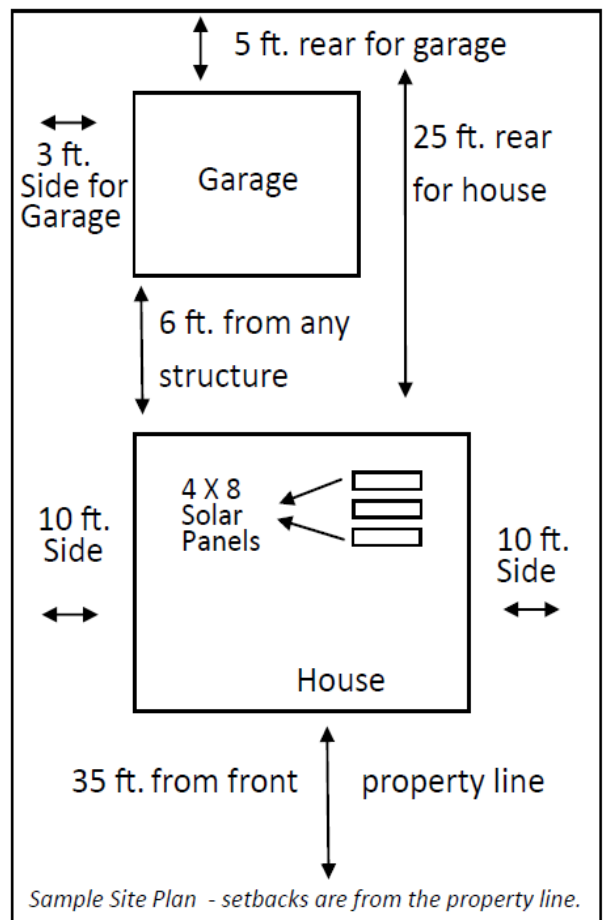
a. Site plan included? Yes No

6. Is the equipment to be flush mounted to the roof mounted such that the collector surface is parallel to the roof?

Yes No

7. The minimum structural threshold for installing a flush-mounted PV system is a roof structure with at least 2 inch x 4 inch rafters no more than 24 inches on-center spacing. Does the roof structure use 2 inch x 4 inch or larger rafters, spaced no wider than 24 inches on center?

Yes No



8. For roof installations, roof decking and structural supports should all be in good condition without visible roof sag/deflection. If the roof has more than one layer of roof coverings or is in poor condition, it may be required to be replaced prior to installation of solar panels. Is the roof structure in good condition, having no visible sag, cracking or splintering of rafters, or other potential structural defect?

Yes No

- a. If roof structure is accessible, please provide a photo showing the condition of the roof. If roof structure is not accessible, please provide an exterior photo, side view, of the roof.
Picture Provided? Yes No

IV. ADDITIONAL DOCUMENTATION

You may be required to provide additional documentation if the equipment is not flush mounted, the rafter space is more than 24 inches, or the roof is not in good condition.

1. If not a flush mount system, provide a side elevation identifying the pitch and height of the collector and mounting system relative to the roof.
2. Certain situations may require a structural engineer such as:
 - Commercial flat roof project (per Minnesota State Statute 326.02).
 - Residential flat roof that is raised above the roof system with no support below.
 - The proposed system is designed above the structure and will endure additional loads such as wind pressure and snow load.
 - The structural system is in poor condition or has damaged areas.
 - The structure is built into grade or a horizontal slope. (Soil loads may apply.)
 - There may be additional water pressure when located to a pond or pool.
3. If a study or statement is required from a Minnesota licensed/certified structural engineer, approval can come in the following forms:
 - a. Construction plans denoting the roof structure and any modifications to the structure, as well as the method of installation of solar collector on the subject property.
 - b. Letter from engineer accomplishing the same as above if the engineer feels that letter format will provide the necessary information.