



Department of Building Inspection

City & County of San Francisco

1660 Mission Street, San Francisco, California 94103-2414

MEMORANDUM

Date: January 9, 2008

To: All Interested Parties

From: Laurence Kornfield, Chief Building Inspector, TSE *LK*

Re: **Current San Francisco Solar Photovoltaic Permitting Procedures**

The following interim procedures, in effect since August 3, 2007, apply to solar photovoltaic permitting and inspection activities in San Francisco until superseded:

1. No Planning Department review is required except where the installation of the solar photovoltaic systems creates or is part of a vertical or horizontal addition to a building, such as a new roof structure or carport extending beyond the surface on which the photovoltaic system could be directly mounted.
2. Electrical permits only are required for photovoltaic systems, and no building permits, building fees, or building inspections are required.
 - Except that building permits may be required for structural or electrical systems that, in the opinion of the Director of the Department of Building Inspection, require extensive permit review to assure the public health and safety.
3. No submittal information, such as site plans or roof layouts, are required, except as detailed in 5 (below).
4. Electrical permits for photovoltaic systems shall be charged at the rate established in SF Building Code, Table 1-E, Category 3E:
 - Up to 100 kw \$111.25 per system plus permit processing fees
 - Over 100kw \$400 per system plus permit processing fees
 - Plan review, where required \$80 per hour
 - Re-inspections, where required \$80 per hour
5. Electrical diagrams are not required for electrical permits for photovoltaic systems,
 - Except that if the photovoltaic system is greater than 4 kw in size, an electrical line diagram must be presented for over-the-counter review by Electrical Inspection Division staff prior to issuance of electrical permit for the installation of the photovoltaic system.

6. On a flat roof (up to 3:12) with only one street frontage, a 3 foot clear area must be provided along the roof edge facing the street and a 3 foot clear walkway, provided at any location, must allow access to the rear of the building. On a case-by-case basis, the Fire Department will consider alternatives or exceptions to these requirements.
7. On a flat roof (up to 3:12) on a corner lot having two street frontages, a 3 foot clear area must be provided along the roof edges facing both streets. No other walkway is required. On a case-by-case basis, the Fire Department will consider alternatives or exceptions to these requirements.
8. On a pitched roof (over 3:12) a 3 foot clear area must be provided along the roof edge facing the street and a clear area measuring at least 18 inches, measured on the roof surface, must be provided from the ridge of the roof to the edge of the photovoltaic panel. On a case-by-case basis, the Fire Department will consider alternatives or exceptions to these requirements.
9. Clear access to fire standpipes and other emergency equipment on roofs must be retained.
10. If the roof area is greater than 5000 square feet and the photovoltaic system covers more than 80% of the roof area, the photovoltaic panel layout must be reviewed by Fire Department to assure sufficient emergency access. The Fire Department will accomplish this review over-the-counter at no fee, with additional no permit required.
11. Solar photovoltaic panels must be supported on the roof or surface of the building that they serve.
12. Solar photovoltaic panels may be installed over only one roof covering of a flat/built up roof or two roof coverings of a shingled roof unless otherwise approved by the Department of Building Inspection. The Department of Building Inspection will review such requests over-the-counter at no fee, with additional no permit required. Requests should be accompanied by details of current roof assemblies and approximate weights per square foot.
13. Storage batteries are not part of system.
14. Structural safety for photovoltaic system installations may be assured in any one of the following three ways:
 - I. Have structural mounting systems pre-approved by the Department of Building Inspection (see attached materials). Contractors must have pre-approved structural documents available on the site at the time of Electrical inspection.

- II. Meet the following minimum standards for fasteners of rack systems to roof, and install standard, manufactured rack and panel mounting systems in accordance with manufacturer's standards:
- a. Table of fasteners

# modules (max size 4'x6')	minimum # of mounting points
1	4
2	4
3	6
4	8
5	10
6	12
7	14

 - double number of modules for mounting points
 - assume two bolts per mounting point.
 - b. Lag bots to be 1/4" if 4" embedment into wood joist material, 5/16" if 3" embedment
 - c. Use appropriate fasteners if rack supports are supported by materials other than wood joists
 - d. Maximum panel load is to be no greater than 8 pounds per square foot.
- III. Have structural systems approved by a DBI engineer on a case-by-case basis for individual photovoltaic installation as an over-the-counter, no-fee review. Provide rack installation design drawings and related materials for review.

Since little technical review is required prior to permit issuance, permit holders must be prepared to show conformance with all technical requirements in the field at the time of inspection by the Electrical Inspector.

At this time, please use the form for *Electrical Permit Application for Roof-Mounted Solar Photovoltaic Systems*. This form is available on-line at the DBI website, at the DBI offices, or will be faxed to you upon request by calling 415-558-6030.

On-line permit applications for solar photovoltaic work will be enabled in the near future. For technical information regarding electrical permits and installations, please contact the Electrical Inspection Division at 415-558-6030.

Please note these procedures are still under active review. Comments or questions regarding Solar PV permitting policies are appreciated; please contact Laurence Kornfield, Chief Building Inspector, at 415-558-6244 or at Laurence.Kornfield@SFGov.org. Thank you.

General Requirements:

1. Solar PV panel modules will be supported on the roof or surface of the building that they serve.
- 2: The weight of solar PV panel modules and supporting hardware will not exceed 8 pounds per square foot.
3. Solar PV panel modules may be installed over only one roof covering of a flat/built up roof, or two roof coverings of a shingled roof unless otherwise approved by the Department of Building Inspection (DBI)
4. On a flat roof (up to 3:12) with one street frontage, a 36 inch clear area will be provided along the roof edge facing the street. A 36 inch clear walkway will be provided /maintained to allow access to rear of the building.
5. On a flat roof (up to 3:12) of a corner lot building having two street frontages, a 36 inch clear area will be provided along the roof edges facing both streets. No other walkway area is required.
6. On a pitched roof (over 3: 12) a 36 inch clear area will be provided along the roof edge facing the street and a clear area of at least 18 inches, measured along the roof surface, will be provided from the ridge of the roof to the edge of the solar PV modules.
- 7: Clear access to fire standpipes and other emergency equipment is provided /maintained.
- 8: Storage batteries will not be part of this solar photovoltaic system.
- 9: The solar PV modules will not create and/or will not be part of a vertical or horizontal addition such as, a new roof structure or carport extending beyond the existing building.
- 10: The solar PV modules will be fastened to the roof in accordance with either manufacture's instructions pre-approved by DBI, or the support/fastening system is pre-approved by DBI, or the module mounting rack and roof attachment system is designed and/or installed under the direct supervision of a California licensed engineer or architect, or the modules are fastened in accordance with the following table and requirements:

Number of modules (Max size 4' by 6')	Minimum Number of mounting points
1	4
2	4
3	6

If more than three modules, the number of mounting points shall be doubled per module.

- Assume two bolts per mounting point
- Lag bolts in wooden members will be 1/4" diameter by 4" long, or 5/16" diameter by 3" long.
- Appropriate type and size fasteners will support solar PV panel modules fastened to other materials.

Note:

The contractor's representative who is familiar with the solar PV system shall be on site for the inspection and shall provide access to all areas of the installation. The contractor's representative shall make available all documents related to the solar PV system including: technical data, structural mounting details, and other related information. Since technical review is not required prior to electrical permit issuance for systems of 4kw or less, the permit holder shall demonstrate conformance with all requirements at time of inspection.

Permit # _____

**San Francisco Department of Building Inspection
Electrical Permit Application for Roof-Mounted Solar Photovoltaic (PV) Systems Only**

Job Address: _____ Owner _____ Phone: (____) _____

Contractor License # _____ License Class: _____ Business Tax License # _____

Contractor/Applicant Name: _____ Applicant Phone: (____) _____

Applicant Address: _____ Applicant Cell Phone: (____) _____

Installation Description: Residential Commercial

Number of Roof-mounted Solar PV Modules _____ Watts per Module _____

Number of Interactive Inverters: _____ Power ratings (each) _____ Total Inverter Power _____

Additional Comments: _____

PLEASE CHECK THE APPLICABLE BOXES:

- For total Inverter power rating **up to 100kw** Fee \$111.25 Fee Category IV Equipment 0-800 A
- For total Inverter power rating **over 100kw** Fee \$420 Fee Category IV Generator over 100Kw
- _____ hours plan review Fee \$80/hr Fee Category "additional inspections"
- Total inverter power over 4kw (If checked, DBI Electrical review and approval of electrical one-line drawing is required in signature box 1)
- Roof area is greater than 5000 sq. feet and solar PV modules cover more than 80% of the roof area.
(If checked, Fire Department review and approval of PV module layout is required in signature box 2)
- Built up roof has more than one layer, or shingled roof has more than two layers, or attachment details not pre-approved.
(If checked, DBI Structural review and approval of roof load & attachment details is required in signature box 3)

Please review your permit information for accuracy. A new permit is required to correct inaccuracies or omissions on issued permits.

Roof-mounted solar PV installations that conform to the general requirements itemized on page 2 of this Form will not require a building permit application, Planning Department approval, plan review, or equipment submittal.

Contractor shall arrange a final inspection of the completed solar photovoltaic system, telephone: 415-558-6030

#1 Electrical review if solar PV system(s) installation is rated over 4kw Date: _____
Signed by _____ Print name _____ Phone _____

#2 Fire Dept. review if roof area is over 5000 sq ft and solar PV modules cover more than 80% of roof area
Date _____
Signed by _____ Print name _____ Phone: _____

#3 Structural review if solar system is installed over more than one layer of built-up roof or two layers of shingled roof
Date: _____
Signed by _____ Print name _____ Phone: _____

#4 The ten conditions listed on the reverse side of this form accurately represent the proposed solar photovoltaic project.
Date: _____
Signed by _____ Print name _____ Phone: _____