



Clark County Department of Building & Fire Prevention

Building Division – Inspection Services

Field Inspection Guideline

SUBJECT:	Solar Photovoltaic Systems	FIG-E-022
Effective Date:	May 1, 2007	Revised: May 20, 2014
		Approved By: BAT
Code Chapter:	2011 NEC Article 690	Page 1 of 3

Interpretation: Electrical permits and inspections are required for the installation of solar photovoltaic systems, in both residential and commercial applications.

Field Application: Inspection of photovoltaic systems shall be completed as outlined below and using the following checklist:

- A copy of the manufacturer’s installation instructions shall be available on site at all inspections. Inspections shall be made to ensure conformance of the manufacturer’s installation instructions.
- The installation instructions shall include details for the mounting and supporting of the solar modules.
- The dc/ac inverter unit must be listed as “Utility Interactive” if the system is to be connected into the utility system.
- The disconnecting means required in 690.14 shall be located on the exterior of the building in the proximity of the utility service equipment, and labeled as “Solar System Disconnect.”
- The installation and inspection shall conform to the applicable system as described in the Inspection Division solar check list.

Revision History:

Reference #	Title	Effective Date	Revised	Reviewed
FIG-E-022	Solar Photovoltaic Systems	May 01, 2007		May 23, 2013
FIG-E-022	Solar Photovoltaic Systems			March 07, 2014
FIG-E-022	Solar Photovoltaic Systems		May 20, 2014	

YES	NO	N/A	Electrical Requirements	
			General wiring, outlets and lighting per the code	NEC
			Raceways and enclosures listed rain tight if installed on the exterior.	300.6
			Verify solar PV modules electrically bonded together and to the system.	(11) 690.43
			PV source and output circuits are to be separated from all other systems.	(11) 690.4 (B)
			All PV Equipment required to be identified and listed for solar PV use	(11) 690.4 (D)
			Over current devices and conductor sizing based on continuous duty.	(11) 690.8 (B)
			Requirements pertaining to source circuits do not apply to ac modules (micro-inverters).	(11) 690.6 (A)
			Grounded DC PV arrays shall have DC ground-fault protection except ground or pole mounted and for other than dwelling units.	(11) 690.5
			The maximum current shall be the sum of the short circuit currents on the inverter nameplates.	(11) 690.8 (A)
			PV systems with DC source or output circuits penetrating a building operation at 80V or greater shall be protected by a listed DC Arc- fault circuit interrupter or equivalent.	(11) 690.11
			DC Raceways to be min 10 in. below roof sheathing and permanently labeled (every visible location and every 10 ft.).	(11) 690.31 (E) (1-4)
			PV DC source and output circuits inside a building shall be in a metal raceway.	(11) 690.31 (E)
			All DC circuit raceways shall be labeled every 10 feet and within 1 foot of change in direction	IFC 605.11.1.4
			DC circuit raceways shall have reflective, weather resistant markings saying "WARNING: PHOTOVOLTAIC POWER SOURCE"	IFC 605.11.1.1.2
			Solar PV disconnecting means required and properly labeled.	(11) 690.13 & 690.17
			Solar and output circuits operating at over 30V in a readily accessible location shall be in a raceway	(11) 690.31 (A)
			Existing ac grounding system is allowed to serve the PV system.	(11) 690.47 (C)
			Listed interactive inverters and ac modules required where utility is also present.	(11) 690.60
			Solar conductors must terminate at the load side of disconnecting means (bottom).	404.6C
			Total inputs to bus limited to 120% if inputs are on opposite ends of the bus. If not on opposite ends, limited to 100%.	690.64 (B)(2) & (7)
			Approved plans and paperwork on site NOTE: 5kw or less only manufacturers' installation instructions required for the electrical plans.	
			Non compliance with exceeding the scope of permit requires a written correlation notice to explain situation in the field to the plans group.	
			Racking per approved design/manufactures instructions	
			Panels installed so as one or both sides are 18" or greater above the roof surface below require structural	
			Maximum spacing of supports 48" O.C. or structural plans required	
			Roof load for panels considered and per approved plans	(12) IRC 2301.2.2
			Roof and wall penetrations flashed and sealed	(12) IRC 2301.2.7
			Listed and labeled collectors	(12) IRC 2301.3.1
			UV protection of plastic parts and piping	SRCC-6.1.2.2
			Notching and boring of framing members within code allowance	IRC/IBC
			Wood framing Fire blocking repaired to code level	IRC/IBC
			Meter of disconnect behind gate or fence NOX box with gate key to be provided	
			Panels shall not be closer than 3 ft to the roof ridge	IFC 605.11.3.2.4
			Hip roofs shall have 3 ft clear path from eve to ridge line	IFC 604.11.3.2.1
			Gable roofs shall (2)-3ft paths from eve to ridge	IFC 605.11.3.2.2
			Commercial roofs shall have 4 ft clear perimeter path. Wider paths may be noted on the approved plans.	IFC 605.11.3.3.1
			Commercial building shall have a 8 foot path centered on the array 1 path in each axis of the roof.	IFC 605.11.3.3.2
			An additions 4 ft path shall be provided to all smoke vents, skylights and roof standpipes	IFC 605.11.3.3.2
			Maintain access and working clearance to all roof top equipment	
			Approved plans and paperwork on site NOTE: 5kw or less only manufactures installation instructions required for the electrical plans	
			Non compliance with exceeding the scope permit requires a written correction notice to explain situation in the field to the plans check group	
			Racking per approved design/manufactures instructions	

			Panels installed so as one or both sides are 18" or greater above the roof surface below require structural	
			Maximum spacing of supports 48" O.C. or structural plans required	
YES	NO	N/A	Electrical Requirements	
			Roof load for panels considered and per approved plans	(12) IRC 2301.2.2
			Roof and wall penetrations flashed and sealed	(12) IRC 2301.2.7
			Listed and labeled collectors	(12) IRC 2301.3.1
			UV protection of plastic parts and piping	SRCC-6.1.2.2
			Notching and boring of framing members within code allowance	IRC/IBC
			Wood framing Fire blocking repaired to code level	IRC/IBC
			Meter or disconnect behind gate or fence NOX box with gate key to be provided.	
			Panels shall not be closer than 3 ft to the roof ridge	IFC 605.11.3.2.4
			Hip roofs shall have 3 ft clear path from eve to ridge line	IFC 605.11.3.2.1
			Gable roofs shall have (2)-3ft paths from even to ridge	IFC 605.11.3.2.2
			Commercial roofs shall have 4 ft clear perimeter path. Wider paths may be noted on the approved plans	IFC 605.11.3.3.1
			Commercial buildings shall have a 8 ft path centered on the array 1 path in each axis of the roof.	IFC 605.11.3.3.2
			An additions 4 ft path shall be provided to all smoke vents, skylights and roof standpipes	IFC 605.11.3.3.2
			Maintain access and working clearance to all roof top equipment	