



City of Maple Grove

“Serving Today, Shaping Tomorrow”

Solar PV Electrical Inspection Checklist

Required Documentation

- Manufacturer specifications for:
 - solar panel
 - inverter
 - module
 - optimizer (if used)
- Manufacturer specifications and verification for racking system grounding and bonding
- Verification that all equipment:
 - installed is safety listed from a certified national testing laboratory
 - is listed for use with the desired PV application
- Verification of sizing for installed electrical wiring/equipment via 1-line diagram with calculations
- Existing roof layout (prior to solar installation)
- Proposed roof layout of solar installation
 - Pictures of PV wiring both in attic and on roof after installation (to be available at time of inspection)

The 2020 National Electrical Code sections are noted below with section numbers only throughout the document

PV System

- Is the PV system utility-interactive, stand alone or multimode? 690.1/690.10
- Is all equipment listed for PV application? 690.4
- Is the system grounded, ungrounded or functionally grounded? 690.2/690.41
- Has DC Ground-Fault protection been adequately provided and properly labeled? 690.41(B)
- What is the maximum PV system voltage? 690.7
- Is all listed equipment rated for the maximum voltage? 690.7
- Determine the maximum circuit current for the PV source and output circuit; inverter output circuit; inverter input circuit; DC to DC converter output (refer to inverter documentation) 690.8

Please verify installations meet 2020 NEC

System Grounding

- Is all exposed non-current carrying metal parts of the PV system grounded? 690.43/690.47
- Are the mounting structures or systems used for equipment grounding? 690.43
- Are the interconnecting devices used for equipment grounding listed and identified? 690.43

- Is the EGC properly sized and protected if exposed, not being smaller than a #6 690.45/690.46/690.50/250.122/250.120(C)
- Has the grounding electrode system been installed? 690.47
- If both AC and DC are present, has the DC G.E.S been bonded to the AC G.E.S? 690.47(A)
- If a Supply Side system, is the AC disconnect properly grounded and bonded? 250.25

Wiring Methods and Disconnecting Means

- Are the conductor and cable ampacities determined at 125% before adjustment factors? 690.8(B)
- How are the PV Source and Output Circuit protected from overcurrent? 690.9
- Do AC and DC OCPD's have the appropriate voltage, current and interrupting ratings? 690.9
- Has arc fault protection been provided for DC source and/or output circuits? 690.11
- With rapid shutdown required, how is it accomplished and identified? 690.12/690.56(C)
- Is the PV disconnect permanently marked and installed in a readily accessible location? 690.13
- If required, has the fused disconnecting means been installed? 690.15/240.40
- If supply side:
 - is the AC disconnect listed as suitable for use as service equipment? 230.82(6)
 - is the PV system equipped with surge protection? 230.67
- Are the isolating devices or equipment disconnecting means installed in circuits connected to equipment at a location within the equipment, or within sight and 10 feet of the equipment? (where maximum circuit current is >30 amperes an equipment disconnecting means shall be provided for isolation) 690.15
- Are PV source or output circuits
 - > 30 volts in a raceway, guarded and readily accessible? 690.31
 - on or inside a building in a metal raceway and marked? 690.31
- Is the PV equipment permanently identified/marked as required by code? (See attached label guide)
- Please verify any/all wiring meets applicable current NEC requirements

Utility Interconnection

- Has a plaque or directory been installed at each disconnecting means (capable of interconnection) denoting all electric power sources & power production sources? 705.10
- Has the point of connection to other sources been properly installed? 705.12
- Is the supply side AC disconnect readily accessible and within 10' of the connection point? 705.11
- Are the utility interactive inverters connected to the system through a dedicated circuit breaker or fusible disconnecting means? 705.12
- Does the bus or conductor ampacity comply as required? 705.12

Please refer to the MN State Department of Labor and Industry's website for additional information: [Solar photovoltaic \(PV\) resources | Minnesota Department of Labor and Industry \(mn.gov\)](#)

The above stated checklist is merely a guide and in no way supersedes code standards. Please refer to the currently adopted 2020 NEC code.