



City of Hopkins - Inspections Division

1010 1st Street South, Hopkins, MN 55343

952.548.6320 | 952.935.1834 (fax) | www.hopkinsmn.com

Accessory Use Solar PV Permit Checklist

Turn in all checklist components as a single Accessory Use Solar PV Permit Application Packet to the Inspections Division. All applications will be reviewed within 5-10 business days. Installation may be initiated only after permits have been issued. If you have questions, please contact us at 952.548.6320 during regular business hours.

- Completed City of Hopkins [Electrical Permit Application](#)
- Completed City of Hopkins [Building Permit Application](#)
 - 2 sets of building plans
 - 2 sets of site plans
 - Payment of Building Permit Fee
 - Structural Compliance* - Construction Plan, Specification Sheets, and Installation Manuals for all manufactured components (see Appendix 1 for additional information). Demonstration of structural compliance subject to the discretion of Inspector.
- Solar Energy System Layout Diagram (see Appendix 2). Diagram must be approved by Fire Department, planning, and zoning.
- Specification sheets and installation manuals for all manufactured components including, but not limited to, PV modules, inverter(s), combiner box, disconnects, and mounting system.
- The system is SRCC certified. The inspector will look for this seal onsite.
- Utility Connection Agreement. All grid intertie systems must have an agreement with the local utility prior to the issuance of a building permit.

The cost of a **Residential** Solar PV System building permit (Ground or Roof Mount) is not to exceed \$400.

The cost of a **Commercial** Solar PV System permit (Ground or Roof Mount) is based on cost-recovery, which will be consistent with the cost for services (permit processing, site plan review, etc.). Cost of permit to be paid at time of application with cash, check, or credit card.

* The MN Department of Labor and Industry (DLI) and Minnesota Department of Commerce developed a [Solar PV standardized structural load tables for residential structures](#) to help determine if the roof structure of wood-framed buildings is sufficient to handle the additional weight of solar PV systems. Permit applicants may use the standardized load table report in conjunction with manufacturer installation recommendations to demonstrate structural compliance.



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Appendix 1 - Structural Review of PV Installation Mounting System & Roof

1. Is the roof supporting the installation a pitched roof in good condition, without visible sag or deflection, no cracking or splintering of support, or other potential structural defect? YES NO

2. Is the roof a rafter system*? YES NO

3. Is the equipment to be flush-mounted to the roof such that the collector surface is parallel to the roof?
 YES NO

**For truss systems, additional information may be needed to establish the truss' design loads. The SolarStruc Tool (<https://www.growsolar.org/wp-content/uploads/2012/06/Solarstruc-2.2.xls>) allows contractors to calculate truss capacity for solar installations. Contact building official for standards on when structural analysis will be needed.*

4. Is the roofing type lightweight? YES (composition, lightweight masonry, metal, etc...) NO

5. Does the roof have a single layer roof covering? Yes No

- If "No" to any of questions 1 -4 above, additional documentation may be required. Documentation may need to demonstrate the structural integrity of the roof and all necessary structural modifications needed to maintain integrity. A statement stamped by a Minnesota licensed/certified structural engineer certifying integrity may be needed. Contact the building official to determine submittal requirements.

6. Identify method and types of weatherproofing for roof penetrations (e.g. flashing, caulk):

7. Is the mounting structure an engineered product designed to mount PV modules with no more than an 18" gap beneath the module frames? YES NO

- If No, provide details of structural attachment certified by a design professional. Manufacturer's engineering specifications are sufficient to meet this requirement.

8. For manufactured mounting systems, fill information on the mounting system below**:

- Mounting System Manufacturer _____
- Product Name and Model # _____
- Total Weight of PV Modules and Rails _____ lbs
- Total Number of Attachment Points _____ (attachment points must be equally distributed across the array)
- Weight per Attachment Point (c÷d) _____ lbs
- Maximum Spacing between Attachment Points on a Rail _____ inches (see product manual for maximum spacing allowed based on maximum design wind speed).
- Total Surface Area of PV Modules (square feet) _____ ft²
- Distributed Weight of PV Module on Roof (c÷g) _____ lbs/ft²
 - o If the outcome of e. is greater than 45 lbs or h. is greater than 5 lbs/ft², a study or statement demonstrating the structural integrity of the installation, or a statement stamped by a Minnesota licensed/certified structural engineer, may be required. Contact the building official to determine requirements

**Attaching the rail to each rafter or truss that passes under the array, or to blocking installed between each support, may serve to mitigate for any structural uncertainties on older roofs or wind loading concerns. This approach was used by Minneapolis and Saint Paul based upon engineering studies conducted with their building stock. Contact the building official to determine requirements.



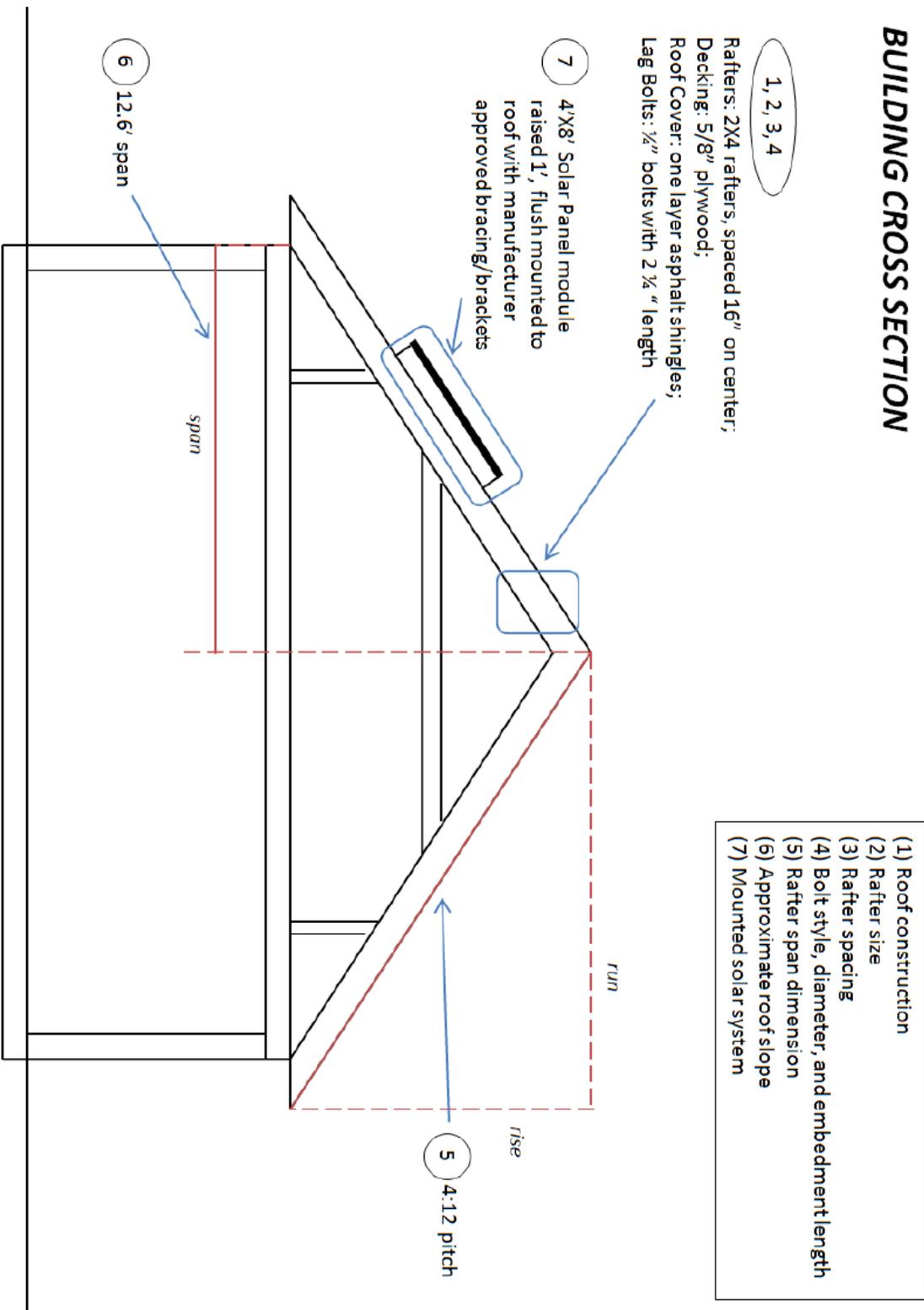
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Appendix 2: Diagrams to complement permit applications

BUILDING CROSS SECTION





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ELEVATION

Flush-Mounted:
(collector surface is parallel to the roof surface)

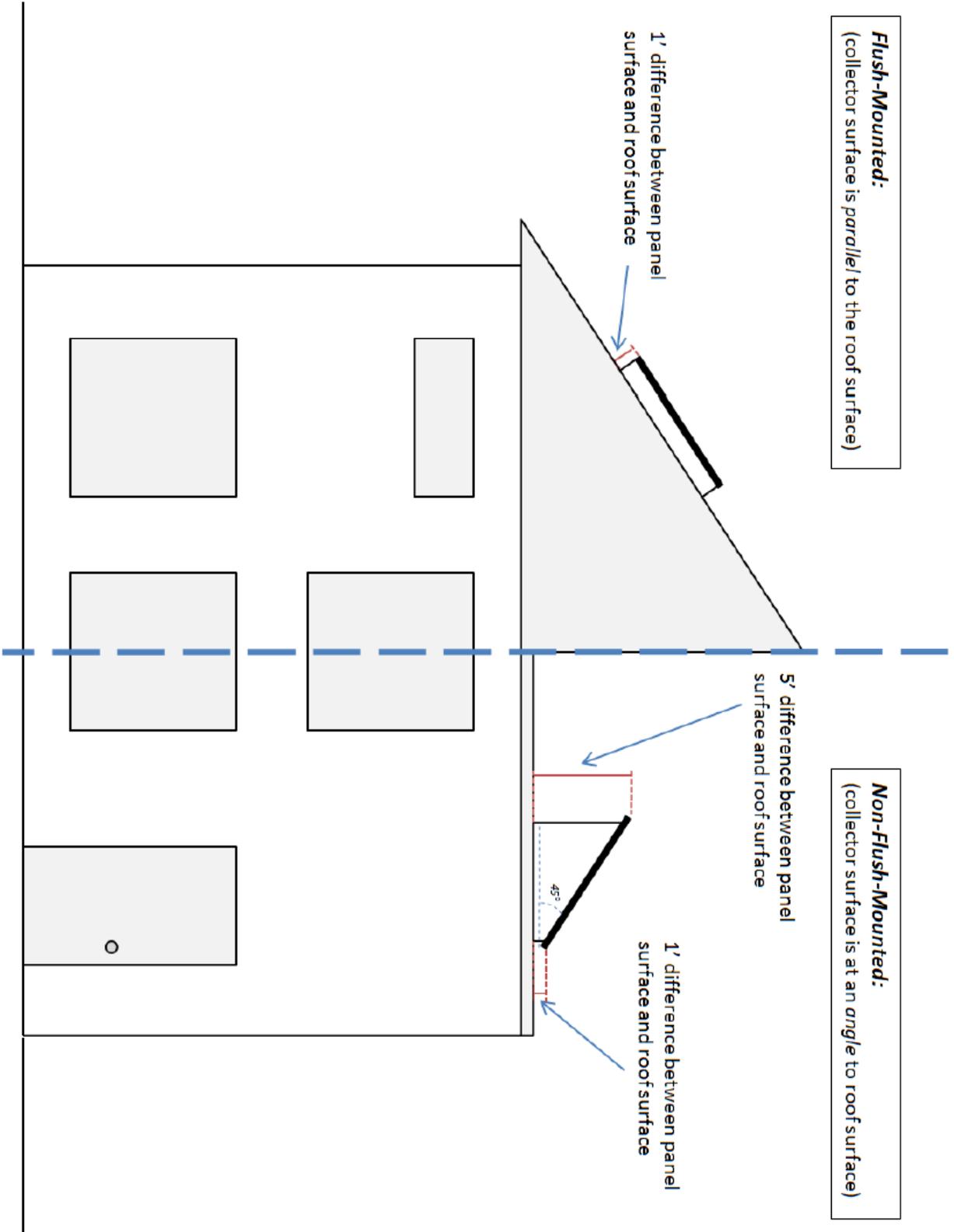
1' difference between panel surface and roof surface

Non-Flush-Mounted:
(collector surface is at an angle to roof surface)

5' difference between panel surface and roof surface

1' difference between panel surface and roof surface

45°



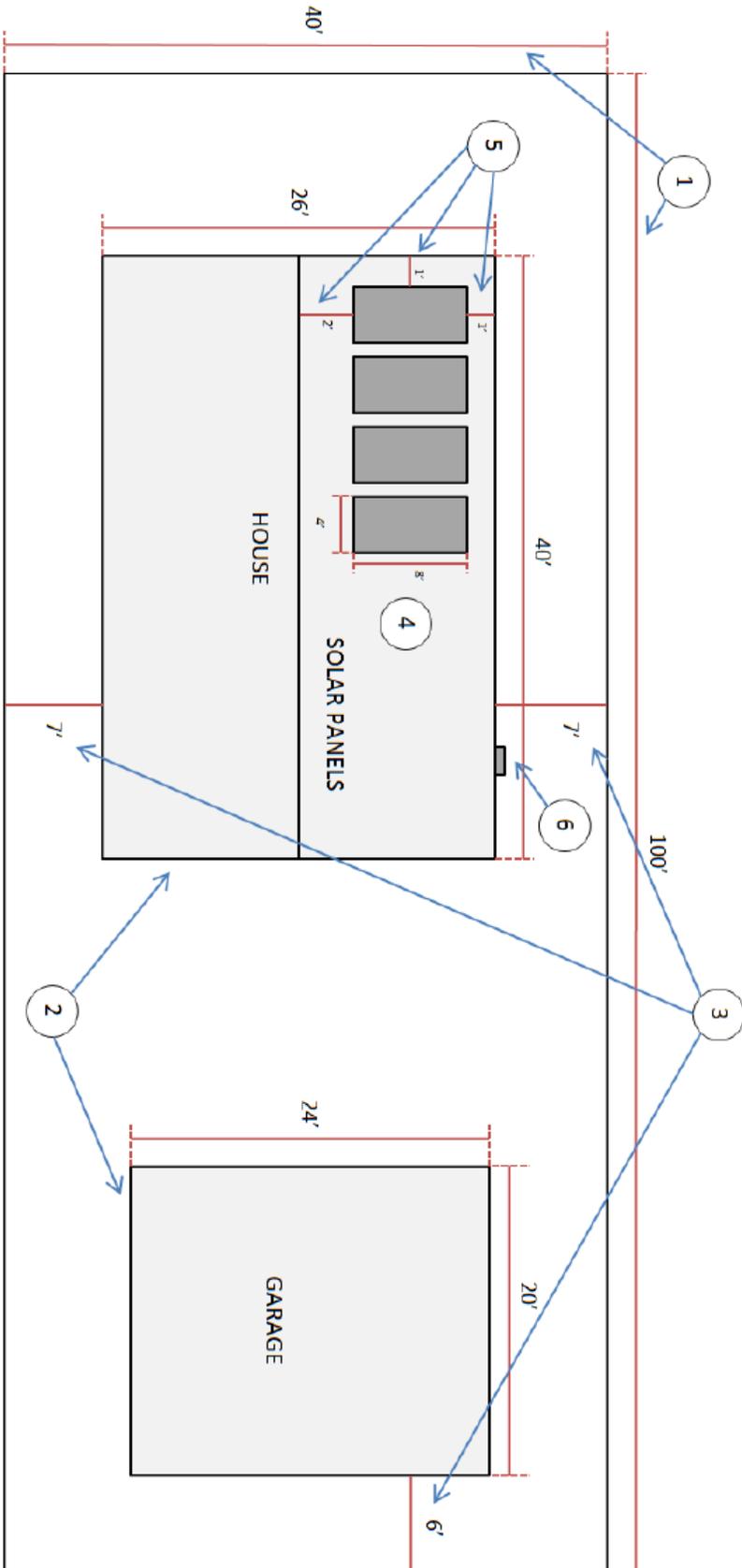


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SITE PLAN



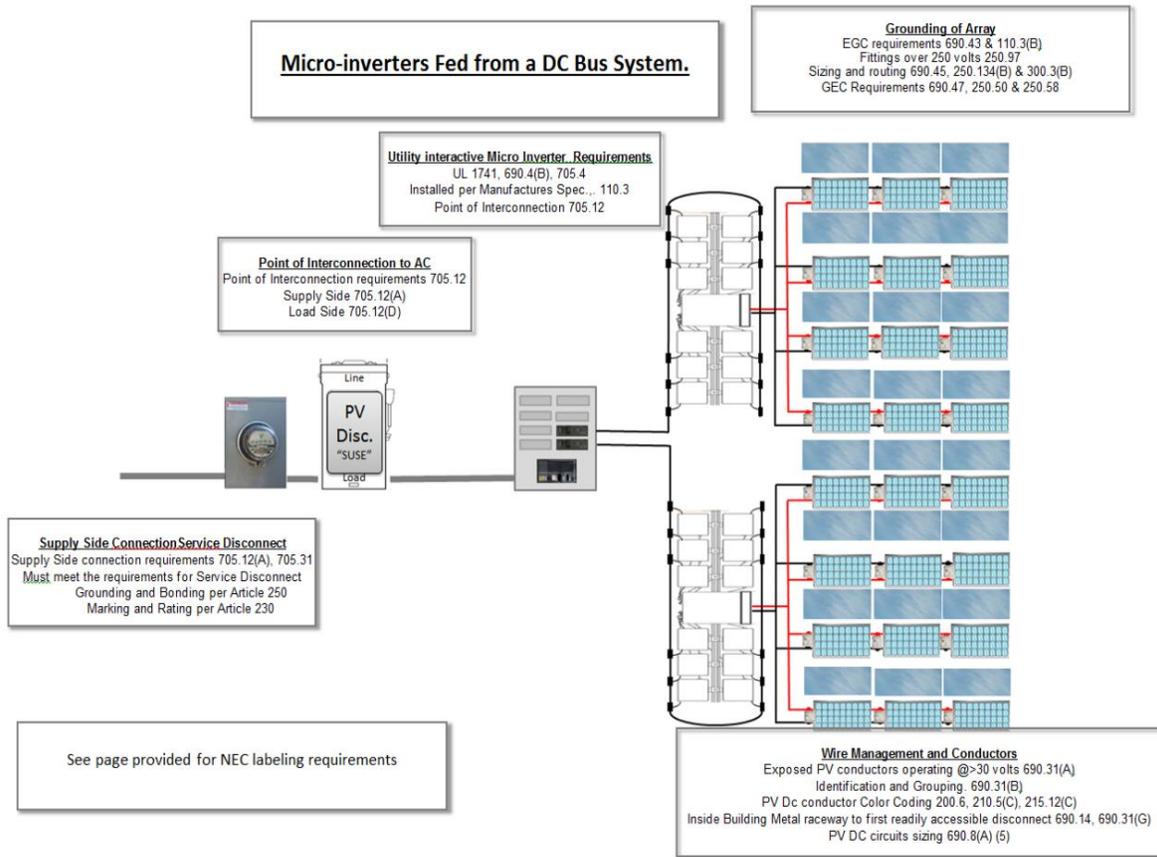
- (1) Property line locations
- (2) Location of all structures
- (3) Setback from property lines
- (4) Location of solar panel installations
- (5) Solar panel setback dimension from roof peak and edges
- (6) Main service location



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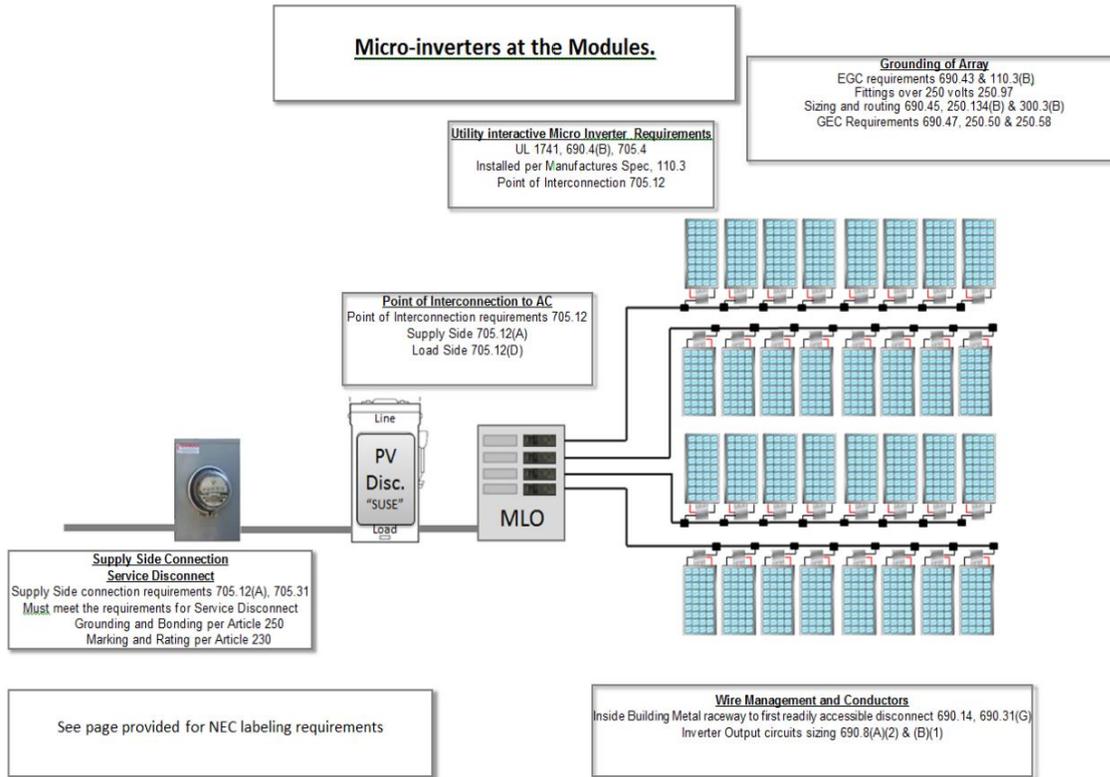




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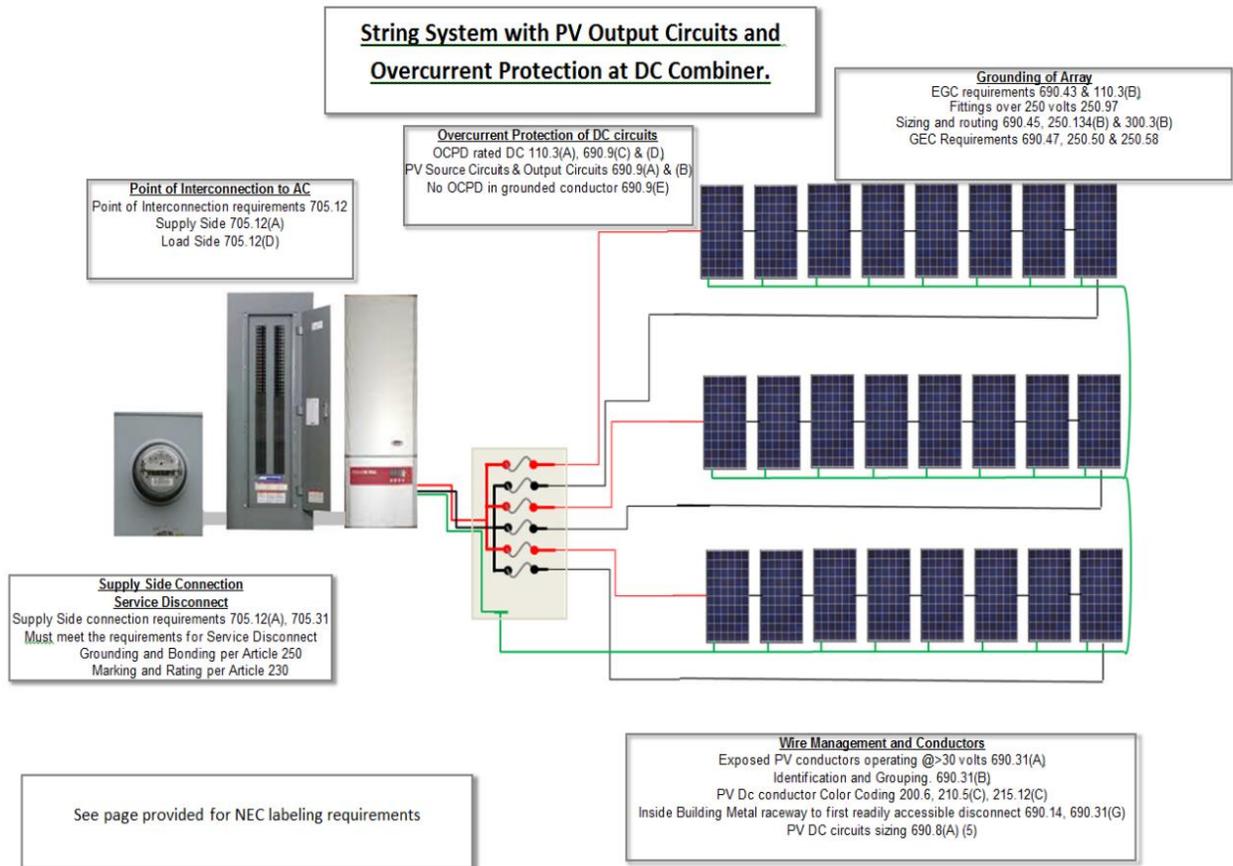




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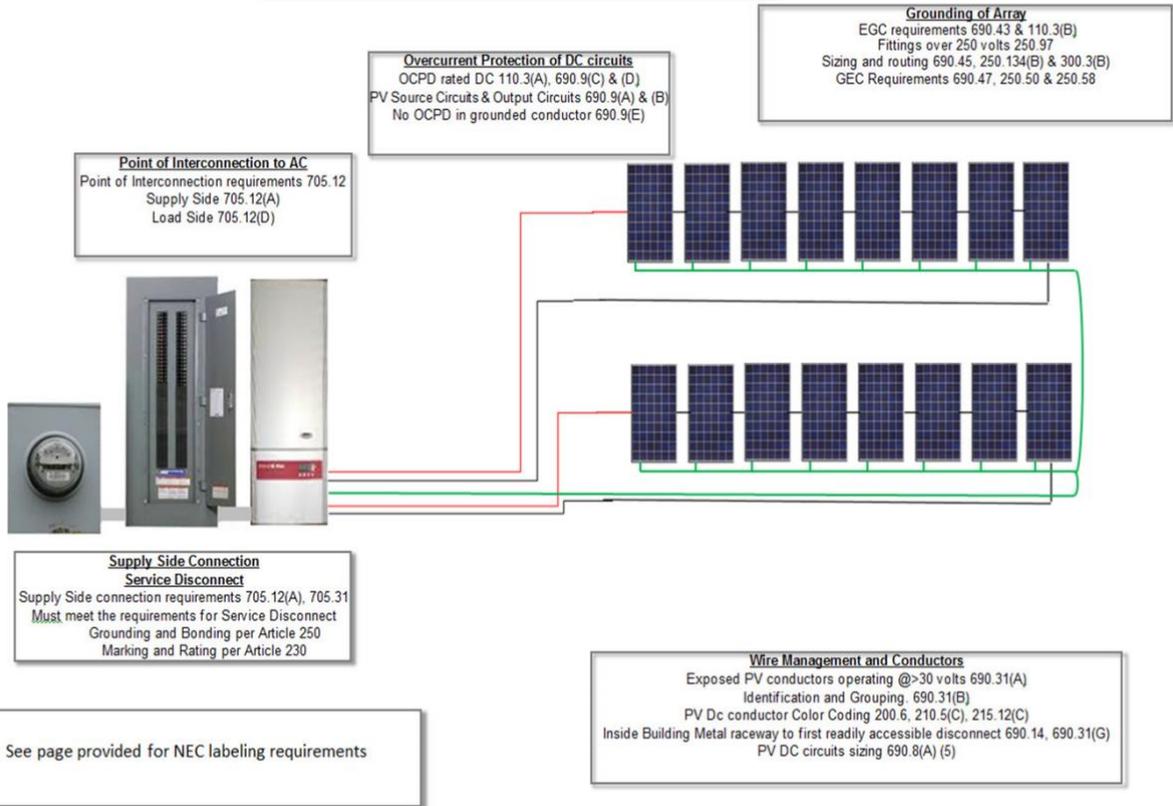


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String System without PV Output Circuits no Overcurrent Protection Required.





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| NEC Labeling Requirements | | | | | |
|---------------------------|--|---------------------------|---|--|---------------------------|
| Section | Location of Label | Label Text and Appearance | | Location of Label | Label Text and Appearance |
| 690.5(C) | Shall appear on the utility-interactive inverter or be applied by the installer near the ground-fault indicator at a visible location | | 690.54 | All interactive system(s) points of interconnection with other sources shall be marked at an accessible location at the disconnecting means as a power source and with the rated ac output current and the nominal operating ac voltage. | |
| 690.35(F) | Shall be labeled with the following warning at each junction box, combiner box, disconnect, and device where energized, ungrounded circuits may be exposed during service. | | 690.56(B) 690.4(D) 705.10 705.12(D)(3) | A permanent plaque or directory, denoting all electric power sources on or in the premises, shall be installed at each service equipment location and at locations of all electric power production sources capable of being interconnected. | |
| 690.13(B) 690.15 | Each PV system disconnecting means shall be permanently marked to identify it as a PV system disconnect. | | 690.17(E) | Where all terminals of the disconnecting means may be energized in the open position, a warning sign shall be mounted on or adjacent to the disconnecting means. | |
| 690.53 | A permanent label for the direct-current PV power source indicating the information specified in (1) through (5) shall be provided by the installer at the PV disconnecting means. | | 705.12 (D)(2)(3)(b) | A permanent warning label shall be applied to the distribution equipment adjacent to the back-fed breaker from the inverter. | |
| | | | 705.12 (D)(2)(3)(c) | Permanent warning labels shall be applied to distribution equipment | |
| | | | 690.56(C) | Buildings or structures with both utility service and a PV system, complying with 690.12, shall have a permanent plaque or directory. Stating: | |
| 690.31(G)(3) | The following wiring methods and enclosures that contain PV power source conductors shall be marked: (1) Exposed raceways, cable trays, and other wiring methods (2) Covers or enclosures of pull boxes and junction boxes (3) Conduit bodies in which any of the available conduit openings are unused | | 690.31(G)(3) | Where circuits are embedded in built-up, laminate, or membrane roofing materials in roof areas not covered by PV modules and associated equipment, the location of circuits shall be clearly marked. | |