Michigan Residential Code for Solar Installs

R324.3 Photovoltaic Systems:
Photovoltaic systems shall be designed and installed in accordance with Sections R324.3.1 through R324.6.1 and NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

R324.3.1 Equipment Listings:
Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703.

R324.4 Rooftop-Mounted Photovoltaic Systems:
Rooftop-mounted photovoltaic panel systems installed on or above the roof covering shall be designed and installed in accordance with Section R909.

R324.4.1 Roof Live Load:
Roof structures that provide support for photovoltaic panel systems shall be designed for applicable roof live load. The design of roof structures need not include roof live load in the areas covered by photovoltaic panel systems. Portions of roof structures not covered by photovoltaic panels shall be designed for roof live load. Roof structures that provide support for photovoltaic panel systems shall be designed for live load, L_R, for the load case where the photovoltaic panel system is not present.

R324.6 Ground-Mounted Photovoltaic Systems:
Ground-mounted photovoltaic systems shall be designed and installed in accordance with Section R301.

R324.6.1 Fire Separation Distances:
Ground-mounted photovoltaic systems shall be subject to the fire separation distance requirements determined by the local jurisdiction.

R324.7 Access and Pathways:
Roof access, pathways and spacing requirements shall be provided in accordance with Sections R324.7.1 through R324.7.2.5.
Exceptions:

1. Detached garages and accessory structures to one- and two-family dwellings and townhouses, such as parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways and spacing requirements need not be provided where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed.

R324.7.1 Roof Access Points:
Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires or signs.

R324.7.2 Solar Photovoltaic Systems:
Solar photovoltaic systems shall comply with Sections R324.7.2.1 through R324.7.2.5.

R324.7.2.1 Size of Solar Photovoltaic Array:
Each photovoltaic array shall be limited to 150 feet by 150 feet (45720 by 45720 mm). Multiple arrays shall be separated by a clear access pathway not less than 3 feet (914 mm) in width.

R324.7.2.2 Hip Roof Layouts:
Panels and modules installed on dwellings with hip roof layouts shall be located in a manner that provides a clear access pathway not less than 3 feet (914 mm) in width from the eave to the ridge on each roof slope where panels and modules are located. The access pathway shall be located at a structurally strong location on the building capable of supporting the live load of fire fighters accessing the roof.
Exception: These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.

R324.7.2.3 Single Ridge Roofs:
Panels and modules installed on dwellings with a single ridge shall be located in a manner that provides two, 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels or modules are located.
Exception: This requirement shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.

R324.7.2.4 Roofs With Hips and Valleys:
Panels and modules installed on dwellings with roof hips or valleys shall not be located less than 18 inches (457 mm) from a hip or valley where panels or modules are to be placed on both sides of a hip or valley. Where panels are to be located on one side only of a hip or valley that is of equal length, the 18-inch (457 mm) clearance does not apply.
Exception: These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.

R324.7.2.5 Allowance for Smoke Ventilation Operations:
Panels and modules installed on dwellings shall not be located less than 3 feet (914 mm) below the roof ridge to allow for fire department smoke ventilation operations.
Exception: Where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed, clearance from the roof ridge is not required.

Plans required:

1. Please submit all manufacture documents.
2. Please submit your array layout following the required layout separation above.
3. Please submit your array layout as shown on a plot plan.
    a. Site diagram showing the arrangement of panels on the roof or ground, north arrow, lot dimensions and the distance from property lines to adjacent buildings/structures (existing and proposed)
4. Please provide a structural load design evaluation for racking system.
    a. *R301.1 Application**:***
    Buildings and structures, and parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the foundation. Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.
    b. *R909.2 Structural Requirements:*
    Rooftop mounted photovoltaic panel systems shall be designed to structurally support the system and withstand gravity loads in accordance with chapter 3. The roof upon which these systems are installed shall be designed and constructed to support the loads imposed by such systems in accordance with Chapter 8.
    c. *R301.1 Application**:***
    Buildings and structures, and parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the foundation. Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.
5. Please submit all electrical equipment and manufacture specs.
6. Please submit an electrical one-line diagram.
7. Please provide drawing with locations of main service or utility disconnect.
8. Total number of modules, number of modules per string and the total number of strings.
9. Make and model of inverter(s) and/or combiner box if used.
10. Specify grounding/bonding, conductor type and size, conduit type and size and number of conductors in each section of conduit.
11. If batteries are to be installed, include them in the diagram and show their locations and venting
12. Equipment cut sheets including inverters, modules, AC and DC disconnects, combiners and wind generators.
13. Location and wording for permanent labeling of equipment