Revised June 2021

Plans and inspections are to be compliant with the current Florida Building, Fire, Plumbing and National Electric Codes. For questions, please email permit@auburndalefl.com

General Requirements

- o Provide manufacturer installation instruction and specification sheets for all associated equipment. (*PV modules, inverters, AC/DC combiner boxes and electrical panels, disconnects, mounting system, optimizers, micro inverters, rail racking, battery storage systems, line diagrams, calculations, grounding, and bonding*).
- o Provide system description and operation.
- o Plans shall be signed and sealed by a Registered Design Professional or Florida Solar Energy Center (FSEC) system approval report per Florida Statute 377.705.

Site Plan

- o Aerial view of structure and orientation. 107.3.5
- o PV disconnect plaque if not located at service equipment. 690.56(B)
- o Provide location of all existing and proposed electrical equipment. 107.3.5
- o Provide clearances for all venting, openings, mechanical equipment, and skylights. FFPC 11.12.2.2.2.1
- o Plaques or directory denoting all power sources on premises. 705.10

Roof Plan

- o Provide fire department setbacks/roof access pathway and point of access. Access points must not be over an egress/emergency escape window. Access pathways are 18" from valleys, 3' from ridge, 3 'from edge of roof. Fire Department access pathways are one 3' wide pathway adjacent to panels on hip roofs, two 3' wide pathways adjacent to panels on single ridge roofs. Panes shall not be higher than 3' below the ridge for all roofs and shall be 18' from any valley. FFPC 11.12.2.2.2.1 (11.12 NFPA 70)
- o Provide module array layout to include # of modules in series, # of parallel source circuits, # of strings, total number of modules. Note: Overcurrent protection may be required on more than two (2) strings. NEC 690.8
- o Provide conduit size and location. 690.8
- o Provide array orientation and pitch of roof. 107.3.5

- Provide location of junction boxes. 690.34
- Provide required clearances to all existing equipment
- Roof structures that provide support for photovoltaic panel systems shall be designed for live load. Provide roof support data or engineer letter that roof system can support photovoltaic panel system. 107.3.5

Structural Plan − Attachment Plan

- Certification of structural components to wind load. 107.3.5
- All ground mounted solar panels are to be designed by a Registered Design Professional.
- Provide support rail and module dimensions, weights, materials, and method of attachment. (cut sheet) 107.3.5
- Provide fastener type, material, diameter, length, and spacing. (cut sheet) 107.3.5
- Provide penetration flashing and waterproofing. (cut sheet) 107.3.5
- Provide manufacturer specifications for grounding and bonding of support system and modules. 107.3.5
- Attachment details are to include modules, arrays, racking system, rail layout, mounting details, fasteners, and penetrations. 107.3.5
- Provide roof covering type (shingles, shake, etc.) 107.3.5

System Calculation Details Plan

- One- line electrical diagram detailing all major field installed electrical components, wire identification, sizing, and grounding. Conduit and conductor sizes, grounding electrode conductor (correction factors, ambient temp, # of conductors, voltage drop) 690.47.
- Total number of modules, number of modules in series. 690.51
- Total number of micro-inverters connected to a branch circuit. 690.54, 690.8(A), 690.9(B)
- Total number of micro-inverters connected to a panel. 690.54, 690.8(A)(3), 690.9(B)
- Rated maximum power-point current per string and parallel strings. 690.53
- Rated maximum power-point voltage. 690.53
- Maximum system voltage (open circuit voltage with temperature factor). 690.7, 690.53
- Maximum rated current (SCC per string and parallel strings) 690.53
- Point of connection must comply with 705.12(A), 705.12(D), 312.8
- Rated AC output and nominal operating AC voltage. 690.54
- Systems with DC-to-DC converters (optimizers) to be calculated by manufacturer instructions. 690.53

- Tesla systems/battery backup systems/stand-alone systems, inverter output rating must be equal to or greater than the load of the largest piece of utilization equipment. Provide documentation. 690.71
- Battery backup systems/ stand-alone systems must have battery output conductor sized based on the inverter output rating.690.71(H)

Component Requirements Plan

- Manufacturer specifications and installation instructions for inverters.690.4
- Manufacturer specifications and installation instructions for battery storage systems.690.4
- Manufacturer specifications and installation instructions for micro-inverters.690.4
- DC to DC converters (optimizers) manufacturer specifications and installation instructions.690.4
- Manufacturer specifications and installation instructions for grounding/bonding of support system and modules.690.4
- Manufacturer specifications and installation instructions for modules.690.4
- Manufacturer specifications and installation instructions for AC/DC combiner boxes and electrical panels. 690.4

Array and Module Plan

- # of modules in series. 690.8
- # of parallel source circuits. 690.8
- Total number of modules. 690.8
- Solar panel manufacturer specification sheets.690.4

Wiring Plan

- Conductor types.690.31
- Line diagram with existing and new electrical equipment related with PV system.690.4
- Conductor ampacity.690.8
- Existing service size. 690.4
- Conductor sizes with correction factors of derating (ambient temp, number of conductors in conduit, voltage drop)690.8
- Conductor schedule.690.8
- Point of connection must comply with 705.12 for line and load side connections (taps)
- The disconnect and overcurrent protection device for supply side tap shall be grouped with the existing service disconnect.230.72

- o Provide details of grounding electrode system/equipment grounding.690.47
- o System and equipment grounding conductor sizing and lug type. 690.45
- o PVC/ENT not allowed in attics. 352.12(D)
- o PVC Expansion fittings to comply with 352.44

Overcurrent Protection Plan

- o Provide PV power source disconnecting means. Provide disconnect sizing. 690.13
- o Provide Lakeland Electric disconnect one-line diagram.
- o Provide OCP for supply side tap devices. 705.12
- o Provide OCP for load side connections. 705.12(D)
- o Provide OCP source circuit per 690.8(A)(1) and 690.09(B) (OCP may be required when more than two strings are installed in parallel. Provide OCP of each string. 690.9
- o Provide OCP for inverter output per 690.8(A)(3) and 690.9B
- o Provide OCP for battery storage systems per 690.71(H)
- o Provide OCP for micro-inverter circuits per690.8 (A)(3) and 690.9(B)
- o For storage systems, provide disconnect and overcurrent protection per 690.71
- o Provide existing electrical panel/ combiner panel buss bar sizing per 705.12(A) 705.12(D)

Label Plan

- o Electric shock hazard, ungrounded DC conductors may be energized. 690.35(F)
- o Electric shock hazard if a ground fault is detected. 690.5(C)
- o PV disconnect (MPP Current, MPP voltage, SCA, Maximum system voltage) 690.53
- o DC disconnect warning – line load may be energized both sides when open. 690.17(E)
- o Interactive point of connection label (AC operating current and output voltage)690.54
- o PV disconnect plaque and service disconnect (if not together) 690.56
- o Inverter output connection warning (Do not relocate) 705.12(D)(2)(3)(b)
- o System has rapid shut down and devices. 690.12. Method to initiate rapid shutdown. 690.56
- o Arc Fault. 690.11
- o Plaque denoting all electric power sources on or in the premises. 705.10 and 690.56
- o Overcurrent devices not to exceed ampacity of bus bar. 705.12(D)(2)(3)(C).
- o PV disconnect identified as a PV disconnect. 690.13(B)
- o DC circuit wiring systems identified per 690.31(G)(3)

Revisions

- o Any revisions to the plans are to be clouded

- All responses are to include a narrative
- All revision drawings shall be named the same as the original drawing name.

Inspections

- Building Final
- Electrical Rough
- Electrical Final