

Advanced Photovoltaic Installation

Day One

Refresher Course (2 hrs.)

- Photovoltaic Nomenclature
- The Photovoltaic Effect
- Solar Resource

System Design (1/2 day)

- Environmental Effects
- Calculating Array Loading
- Methods to Reduce Point Loading
- Top Cord/Bottom Cord Transfer
- Attachment Methods
- Effective Roof Area for Solar
- Layouts
- Utilizing Module Charts
- Hazard Mitigation

Day Two

System Design (1 day)

- Ohm's law Revisited
- Series vs. Parallel Designing
- String Sizing for Inverters
- Different Inverter Types and Voltage Settings
- Three-Phase Design
- Shade Mitigation Techniques
- Using the NEC to Calculate Wire Sizing, Conduits, Fusing, and Grounding
- NEC 2008 Art. 690 Review
- Interconnection Methods
- Predicting System Outputs

Day Three

Mechanical Installation (1 day in the field)

- Performing a Jobsite Safety Analysis
- Gearing up Your PPE
- Ladder Safety
- Staging Materials and Equipment for Efficiency
- Taking Roof Measurements
- Marking Out the Layout
- Locating Rafters/ Trusses
- Utilizing Uniform Loading
- Installing the Flashings and Feet
- Mounting the Racking
- Homes Runs and Grounding
- Placement of the Junction Box/Penetration
- Setting the Modules
- End of Day Checklist

Day Four

Electrical (1 day in the field)

- Performing a Jobsite Safety Analysis
- Gearing up Your PPE
- Ladder Safety
- Planning Wire Routes
- BOS Installation (Inverters, Combiners, etc..)
- Installing Conduit
- Pulling Wires/ Transitions
- Making Terminations
- Arc Flash Safety
- Panel Interconnection
- Performing the Acceptance Test
- Turning On the System

Day Five

Project Management (1 day)

- Plan Reading
- Checking the Permit
- Applying for the Permit
- Working with Professional Engineers
- Understanding the Various Inspections
- How to Manage Inspectors and Plan Reviewers
- Specification Reading
- Contract Writing and Reading
- Budget Management
- Schedules of Values
- Scheduling
- Resource Management
- Training of Employees
- Understanding Davis-Bacon Wages