

Introduction to Photovoltaics Syllabus

Time: 16 hours

Maximum Class Size: 20

Prerequisite: Green Construction Awareness

Course Description:

This course is intended to introduce the participant to the field of Photovoltaics. Students will receive instruction in basic solar electrical theory, PV safety, PV vocabulary, PV terminology, types of PV systems, system sizing, basic load analysis, and PV components and configuration. Also covered are site surveys and preplanning, modules and arrays and batteries. This course gives the participant a foundation that will enable him to better perform ground mount racking system installation as well as other scopes of work in the green construction industry.

Goals/Objectives/Student Learning Outcomes:

- Understand the potential occupational hazards associated with photovoltaics
- Describe safe working conditions, practices and PPE associated with photovoltaics
- Correctly use and explain the technology associated with photovoltaics
- Identify and describe different types of collectors
- Discuss the advantages of using photovoltaics
- Describe ways array orientation can vary
- Identify factors to consider when determining array location
- Identify and describe the major concepts of a PV system
- Describe different types of PV configurations

Standards

Title 8, Division 1, Chapter 4, Subchapter 4: Construction Safety Orders:

- Article 89 Solar Photovoltaic Systems
- 2588.1 Scope
- 2588.2 Conductors of Different Systems
- 2588.3 Disconnecting Means
- OSHA Subpart E: Personal Protective Equipment

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- OSHA Subpart H: Materials Handling
- OSHA Subpart K: Electrical
- OSHA Subpart N: Cranes

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm
- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Textbooks/Readings/Materials

- Textbook: Photovoltaic Systems by James Dunlop (July 1, 2009)
- Photovoltaic Systems Instructor Resource Guide CD Rom
- Paper for student note-taking
- Flipchart and Markers
- Student Workbook
- Introduction to Photovoltaics Handout Packet

Personal Protective Equipment

- 12 pairs of gloves
- 12 pairs of Safety Glasses
- 20 pairs of Ear plugs
- 12 hard hats

Course Requirements

To receive credit for the course, participants must:

- Be present for full sixteen hours
- Participate in all classroom exercises
- Pass a written exam

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Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment

Assessment and Grading

Participants will be assessed on the following:

- All written exams must be passed with a score of 80% or above.
- All hands-on exercises are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.