Solar Overview (2 hrs)

for SW Ohio, Northern KY & SE Indiana
by John F Robbins CEM / CSDP

2.0 continuing education hours for engineers, contractors, designers and energy professionals

Course Description

Most engineers, contractors and designers recognize solar panels to see them but do not likely understand the many different kinds of possible local solar applications, including some which involve no solar panels. **Solar Overview** begins by introducing and discussing many types of solar found in the Ohio Valley, including photos of local solar space and water heating, daylighting, summer shading and solar electricity. Course focuses mostly on solar heating (air and water) and solar electricity (PV). In describing how to site and orient solar collectors for better solar outcomes, a compass is demonstrated for measuring azimuth and an inclinometer is demonstrated for measuring vertical angles. Passive solar principles are also discussed, including thermal outcomes and shading challenges with different window orientations and glass types of different "solar heat gain coefficient" or SHGC. Several solar heating and electricity estimation methods are presented and described, including NREL's online "PVWatts" program for estimating solar electricity and SRCC's online solar ratings on manufactured thermal collectors. Instructor also explains why it is logical and common for higher levels of energy efficiency to be implemented in solar heating and electricity projects.

Learning Objectives

- Understand how to recognize and estimate outcomes of different solar strategies & equipment, including panels for heating or electric and windows for heating or shading.
- Become familiar with siting and orientation tools for aiming solar equipment, like simple compass and inclinometer or more complex devices. Understand a sunpath diagram. Become familiar with resources and methods for estimating solar collection, both thermal and electric, including when collectors, windows or panels are angled or oriented differently.
- Learn about major components in passive solar, solar water heating and solar electricity systems, including how much storage is recommended for solar water heating. Also learn where to look for solar ratings and evaluations on manufactured solar products including panels and windows.
- Compare different ways to mount and locations to place solar collectors.
- Understand how most solar energy production compares to typical energy needs and timelines from residential, light commercial and electric utility perspectives.
- Learn about best technical solar publications, non-commercial solar websites and regional solar associations.

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