Green Building Pre-Apprenticeship Program / Solar Hot Water Installation and Design Principles

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Objectives

By the end of the Solar Hot Water Installation and Design Principles module, students will understand:

1. How to do a solar site assessment
2. How a solar hot water system operates
3. How to describe and use some of the tools of the trade
4. How to solder copper fitting and plumbing components

Goals

The following are some of the main goals for the Solar Hot Water Installation and Design Principles module.

Concepts

By the end of the Solar Hot Water Installation and Design Principles module, students will understand the following concepts (among others):

- Drain back
- Heat transfer in solar thermal systems
• Closed versus open loops

Vocabulary and units

By the end of the Solar Hot Water Installation and Design Principles module, students will be able to confidently use the following vocabulary and/or units (among others):

• Closed loop, Closed loop glycol, Open loop, Thermosiphon, passive, active, direct, indirect
• BTU/(panel*day), Therms consumed, feet of head

Calculations

By the end of the Solar Hot Water Installation and Design Principles module, students will be able to do the following calculations (among others):

• BTU (needed)

How to

By the end of the Solar Hot Water Installation and Design Principles module, students will be comfortable doing the following (among others):

• Size a system
• Solder
• Wire pump and control
• Mount and check sensors
• Mount collectors on roof
• Use a solar path finder and do solar site assessment

Field trips

By the end of the Solar Hot Water Installation and Design Principles module, students will be have gone on the following field trips (possibly among others):

• BCAT
• Residential Solar hot water
• Solar Trainer – CR Main Campus