

All Course Material To Be Provided

Value of Course:

The four primary goals of this course are:

- 1) Convey in-depth GS-System knowledge - for use in both specific technical evaluation and system installation and service
- 2) Improve GS-System application knowledge to minimize installation and start-up problems.
- 3) Improve GS-System trouble-shooting techniques to increase system start-up and field service efficiency.
- 4) Become an IGSHPA certified installer and member, and receive latest geothermal update periodicals.

The Subjects To Be Covered:

- 1) **Closed-Loop Introduction and Overview** - Examination of ground source System technology, system operation, and system components.
- 2) **Economics, Marketing and Demand Reduction** - Examination and outline of the GS-System benefits to the Owners, HVAC contractors, and the Utilities.
- 3) **Soils and Rock Identification** - Examination of the kinds of rocks and soil and their physical properties.
- 4) **Selecting, Sizing and Designing the Heat Pump System** - Calculation of loop length based on building and ground loads.
- 5) **Designing the Ground Heat Exchanger Design** - Examination of heat exchanger design procedures, configuration, pipe selection, and sizing.
- 6) **Pipe Joining Methods** - PE pipe with Socket and Butt Fusion joining certification.
- 7) **Installation of the Ground Heat Exchanger** - Proper evaluation of a site for the most cost effective system.
- 8) **Grouting Procedures for GS-System Heat Pump System** - Grouting materials for vertical bore holes.
- 9) **Flushing and Purging the System** - Procedure for flushing debris and air from the heat exchanger.
- 10) **Heat pump System Start-up and Checkout** - Performance testing water source heat pumps.

Computer Programs and Testing Equipment Programs:

Ground loop test equipment containing one pressure gauge with Petes plug adaptor, one digital thermometer, & a pressure inducer will be available for \$ 98.59. This kit is highly recommended for closed loop maintenance and determining water flow and unit performance. **If you have a closed loop system to be installed, please bring load calculation for personalized analysis.** On Friday, March 15, the IGSHPA open book examination will be given to assure that the material was understood and retained. The exam will be administered by North American Technician Excellence (NATE), scored by IGSHPA and, if qualified, the individual will receive IGSHPA certification.

If you have any questions, please call:

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