

Geothermal Education Program – Jacksonville, FL

USING THE EARTH'S RENEWABLE ENERGY

Tuesday, June 5, 2012
Crowne Plaza, Jacksonville Airport
14670 Duval Rd., Jacksonville, FL 32218

Ground Source Heating & Cooling for Residential and Commercial Properties Latest Technologies, Economic Advantages, Environmental Impacts and Regulations



Presented by:
American Ground Water Trust
50 Pleasant Street, Concord, NH
501(c)(3) education organization



THANK YOU TO OUR SPONSORS:

Baroid IDP

ClimateMaster

Preferred Pump

GEO



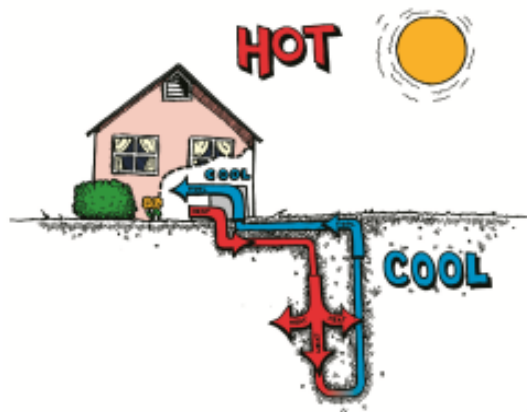
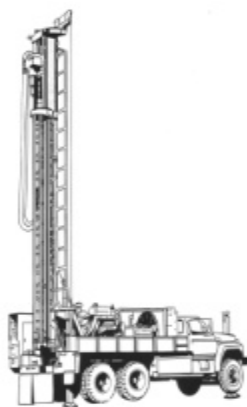
In cooperation with:



GEO and International Ground Source Heat Pump Association

Continuing Education Credit

Architect Credits – 7.25 LUS (FOR HSW AND SUSTAINABLE DEVELOPMENT) THROUGH THE AIA
American Society of Home Inspectors – 7.0 ASHI® CE CREDITS
IGSHPA Accredited Installers – 0.75 CEU's
Florida Water Well Contractors – 7 Hours Approved – Course # 124-060512-101
Florida Engineers – 7 PDHs Approved – Course # 3513
Green Building Certification Institute Provider – GBCI Continuing Education Hours Pending Approval
Call for details about other professions - 800-423-7748



- 7:15 – 8:00 REGISTRATION**
- 8:00 – 8:30 ENERGY & WATER BASICS and THE STATUS OF THE “GEOHERMAL” INDUSTRY**
Garret Graaskamp, Hydrogeologist, American Ground Water Trust, Concord NH
- Concept of Resource Sustainability
 - Trends in US energy sources
 - Is natural-gas the energy source game changer?
 - Environmental Issues related to “Geothermal” technology
 - Role of “Independent Education” in energy issue awareness
 - The importance of “doing it right” for geothermal installations (No shortcuts – No one-size-fits-all)
- 8:30 – 9:00 THE STATUS OF THE “GEOHERMAL” INDUSTRY**
- Geographic distribution of geothermal installations
 - Trends in the growth of geothermal applications
 - Market potential and market predictions for the geothermal industry
 - How the Geothermal industry is organized nationally, regionally and locally
 - What appear to be the barriers to greater acceptance of geothermal installations?
- 9:00 – 9:50 GEOEXCHANGE WELL / BORE CONSTRUCTION AND LOOP INSTALLATION**
Doug Keller, Field Sales Representative, Baroid IDP, Houston TX
- Criteria for selecting a drilling contractor for geothermal projects
 - Matching the drilling equipment and drilling methods to the geological and site conditions
 - Collecting geologic data for the geothermal designer
 - Installing the vertical loop into the drilled bore
 - Grouting material properties and options for geothermal projects
 - Techniques of grout placement to meet geothermal design specifications
- 9:50 - 10:10 NETWORKING BREAK**
- 10:10 – 11:00 GROUND SOURCE HEAT PUMPS - THE FUNDAMENTALS**
Jay Egg, President, Egg Geothermal, Tampa, FL.
- Understanding the basic physics of the heat transfer process
 - Explanation of terminology (geexchange, geothermal, ground source, BTUs, tons etc.)
 - What happens to the heat transferred underground – where does it go?
 - How to measure the efficiency of geothermal systems
 - Aquifer thermal energy – a technology whose time is imminent?
 - Computer models available for geothermal design
 - Real-world examples of geothermal installations
- 11:00- 11:50 GROUND SOURCE EARTH COUPLING DESIGN PRINCIPLES**
Garret Graaskamp, Hydrogeologist, American Ground Water Trust, Concord NH
- Explanation of the methods:
 - Closed loop – vertical, horizontal (slinky)
 - Open system – to surface, to diffusion
 - Heat exchanger systems for surface water (ponds and lakes)
 - Weighing positives and negative aspects of each earth coupling method
 - Design considerations for geothermal wells in bedrock vs. shallow sand & gravel wells
 - What makes one well more efficient than another for thermal transfer?
 - "State of the Art" GX systems
- 11:50 – 12:00 Q & A on morning presentations**
- 12:00 - 1:00 LUNCH (provided on-site)**
- 1:00 – 1:50 HYBRID GEOHERMAL SYSTEMS**
Larry Bunk, Regional Sales Manager, ClimateMaster, Franklin, NH
- Tax incentives and cost benefits of hybrid systems
 - Advantages of hybrid for summer and winter demands
 - Costs and life-cycle benefits
 - Case study example of a 750 ton installation

- 1:50 – 2:40 GROUND SOURCE HEAT PUMP INSTALLATIONS: CASE STUDIES**
Merritt Partridge, Partridge Well Drilling, Jacksonville, FL
- Typical Florida and Georgia closed loop and open loop construction
 - Geological considerations for selecting drilling methods and equipment
 - How the drilling contractor works with the designer and end-user (who calls the shots?)
 - Case studies from Georgia and Florida
- 2:40 – 2:55 BREAK**
- 2:55 – 3:45 GEOEXCHANGE INSTALLATIONS: STATE and LOCAL RULES and REGULATIONS**
Wesley Curtis, Hydrologist, SJRWMD, Palatka, FL
 Regulator's perspective on geothermal
- Environmental & water resources concerns from drilling, heat exchange or well failure
 - Current regulatory requirements for geothermal in Florida
 - "Paperwork" required for installation of a geothermal system
 - Perception of "risks" to the integrity of ground water or aquatic environments
 - In what instances do drinking water regulations apply to geothermal wells?
 - Licensing requirements for geothermal well and heat-exchange equipment installers
- 3:45 – 4:35 ECONOMIC SUCCESS STORIES – THE PAYBACK - Residential, Commercial and Industrial**
Jeff Hatch, Gulf Power Company, Pensacola, FL
 How to do the short-term and long-term math on energy saving vs. installation cost?
- What is the typical payback period and Return on investment (ROI)?
 - How do geothermal installations add equity value to a property?
 - What are the typical servicing and maintenance needs and costs for a geothermal system?
 - What is the relationship among architect, designer and installer? (Who is selling to whom?)
 - Case studies of installation and operation in Florida (homes, churches, schools, offices etc.)
- 4:35 – 4:45 WRAP-UP – QUESTIONS TO THE EXPERTS**



AMERICAN GROUND WATER TRUST



The *American Ground Water Trust* is a non-profit organization that promotes awareness, cooperation and action among individuals, groups and organizations. It has the core mission of promoting "science as the basis for water policy." Specifically, the AGWT's conference and workshop programs and educational materials:

- ◆ **Communicate the environmental and economic value of ground water**
- ◆ **Showcase ground water science and technology solutions**
- ◆ **Increase citizen, community and decision-maker awareness**
- ◆ **Facilitate stakeholder participation in water resource decisions**