

# Geothermal Education Program – Dallas, Texas

Get up to speed with state-of-the-art information about “Geothermal” technology and its applications

## USING THE EARTH'S RENEWABLE ENERGY

Thursday June 9<sup>th</sup> 2011

Hilton Garden Inn Dallas Market Center  
2325 N. Stemmons Freeway, Dallas, TX 75207

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



Presented by:

#### American Ground Water Trust (AGWT)

50 Pleasant Street, Concord, NH  
501(c)(3) education organization



#### THANK YOU TO OUR SPONSORS:

Baroid IDP

ClimateMaster

EDGE Geo LLC

Preferred Pump



In cooperation with:

Geothermal Heat Pump Consortium and International Ground Source Heat Pump Association

#### Continuing Education Credit

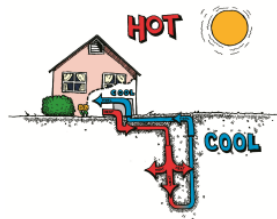
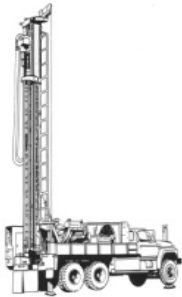
Architect Credits – 7.25 LUS (FOR HSW AND SUSTAINABLE DEVELOPMENT) THROUGH THE AIA

American Society of Home Inspectors – 7.0 ASHI® CE CREDITS

IGSHPA Accredited Installers – 0.75 CEU's

Texas Water Well Contractors – 8 HOURS APPROVED THROUGH THE TEXAS DEPT. OF LICENSING & REGULATION

Call for details about other professions - 800-423-7748



#### WHO SHOULD ATTEND?

This program is geared to potential end-users and to professionals who design, install, inspect, approve, recommend or regulate geothermal systems. Geothermal has the potential to become the technology of choice among those considering “green energy” options for commercial or residential installations.

Energy company engineers, architects, planners & conservation commissioners, building code inspectors, environmental health professionals, home inspectors, water well contractors, HVAC professionals, real estate agents, home builders and developers, town officials (Conservation, Zoning, Planning), water testing specialists etc. should not miss this opportunity to get up to speed with this technology. It will be coming to buildings near you!

## WHAT IT IS ALL ABOUT

Geothermal, (Ground source heating and cooling) (GSHC) technology provides a proven method for saving energy costs for heating, cooling and hot water generation. Thousands of homes, businesses and manufacturing plants across the nation are already taking advantage of these energy-efficient conditioning systems. GSHC systems operate at significantly lower costs than traditional gas, oil or electric-based installations. National benefits from geothermal installations include less demand for energy generation capacity, reduction in green-house gas emissions and a reduced dependence on imports of fossil fuels. Installation of ground source systems involves accessing the sub-surface by excavation or by drilling vertical bores. Because the sub-surface heat-exchange process occurs near or beneath the groundwater table, environmental and water resource regulatory issues make it important to “do the job right.” Correct design, materials specification and installation are critically important to maximize efficiency and minimize risk. There is not a one-size-fits-all for geothermal.

- The Program will:
- ➔ Show the professional connections among designers, manufacturers and installers
  - ➔ Provide the “state of the art” in terms of design options and pay-back calculations
  - ➔ Demonstrate the environmental and strategic benefits of the technology
  - ➔ Explain the tax-breaks, incentives and subsidies available for installing geothermal
  - ➔ Dispel myths about the effectiveness, reliability & safety of ground source systems
  - ➔ Explain industry-accepted installation, operation and maintenance practices
  - ➔ Provide an update on state, local and regulatory oversight

The program draws on the experience & expertise of industry and agency professionals and will provide a unique opportunity for exchange of information among policy makers involved in energy issues and specialists involved with the design, construction and permitting of ground source geothermal systems for cooling and heating.

## PROGRAM

8:15 - 8:30

### INTRODUCTION

**Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH**

- Concept of Resource Sustainability, Environmental Issues related to “Geothermal” technology
- The importance of “doing it right” (No shortcuts – No one-size-fits-all)

8:30 - 9:10

### THE STATUS OF THE “GEOTHERMAL” INDUSTRY

**Tracy Tee, District Manager, ClimateMaster, Moore, OK**

- Geographic distribution of geothermal installations, nationally
- 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?

9:10 - 9:50

### GEOTHERMAL HEAT PUMP SYSTEMS - RENEWABLE, SUSTAINABLE, AND EFFICIENT!

**Phil Rawlings, CGD, Director of Geothermal Services, Trison Construction, Inc., Greenville, TX**

- “Will it work here?”
- The 3 “Rs” - Reduced operation, Reduced maintenance, and Reduced replacement costs
- Are all renewables energy efficient?
- Real world residential and commercial case studies
- Real world maintenance and useful life information

9:50 - 10:30

### GROUND SOURCE EARTH COUPLING DESIGN PRINCIPLES

**Rick Horvath, Texas Territory Manager, WaterFurnace International Inc., Dallas TX**

- Explanation of the methods:
  - Closed loop – vertical, horizontal (slinky)
- Heat exchanger systems for surface water (ponds and lakes)
- Which designs work in Texas? - 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?
- Common misconceptions about geothermal earth coupling

10:30 - 10:45

### NETWORKING BREAK

10:45 - 11:25

### GEOEXCHANGE WELL / BORE CONSTRUCTION

**Lyndon Pence, Account Representative, Baroid IDP, OK**

- How a ground source heat pump boring differs from a water well
- Basic difference between drilling fluids and sealing grouts
- Matching the drilling technology to the geological conditions
- Managing drilling fluids to optimize vertical penetration rates
- Collecting geologic & water quality information for the geothermal designer
- Dual purpose (water supply and geothermal) wells
- Techniques of grout placement to meet geothermal design specifications

**11:25 - 12:05 GROUTS FORMULATED FOR GEOTHERMAL HEAT PUMP APPLICATIONS**

**Alan Skouby, Vice-President, GeoPro Inc., Bowie, TX**

- Regulatory and thermodynamic reasons for grouting
- Grouting material options for geothermal projects
- Heat-exchange physics of thermally-enhanced grouts
- How correct grout selection impacts operational economics
- Verification of geothermal grouting material performance

**12:05 - 1:05 LUNCH (Provided on site)**

**1:05 - 1:25 TEXAS'S ENERGY INITIATIVE - GROUND SOURCE ENERGY OVERVIEW**

**Pam Groce, Texas State Energy Conservation Office, Austin, TX**

- Overview of Texas's Energy Initiatives
- Economic perspective on reducing electrical energy demands
- Potential impact of geoechange technology on efforts to reduce CO2 emissions

**1:25 - 2:05 CASE-STUDIES OF TEXAS GEOTHERMAL INSTALLATIONS**

**William McPike, President, Geothermal Drilling, Huntsville, TX**

- Principal earth coupling methods used in Texas
- Typical designer and contractor relationship – how do contractors price their bids?
- Basis for selection of in-ground material and installation methods
- Site geologic information obtained before drilling
- Permits and “paperwork” required for geothermal projects
- Installation case studies

**2:05 - 3:00 ECONOMIC SUCCESS STORIES – THE PAYBACK – Commercial/ K thru 12 Schools**

**Don Penn, PE, CGD, President, Image Engineering Group, Ltd, Grapevine, TX**

- 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, system designer and installer? (Who is selling to whom?)

**HIGH PERFORMANCE BUILDINGS**

- Net Zero school design (Irving TX) – Lady Bird Johnson Middle School (3<sup>rd</sup> and largest to date in the US)
- Bundled renewable - coupling geothermal with solar

**3:00 - 3:15 BREAK**

**3:15 - 3:55 UNDERSTANDING THE USGBC LEED RATING SYSTEM REQUIREMENTS USING GEOTHERMAL HEAT EXCHANGE**

**David Rodriguez, Vice President, Ware Architecture, Dallas TX, and  
Billy Ware, President, Ware Architecture, Dallas TX,**

- Understanding the difference between energy-efficiency and renewable energy in the LEED Rating System
- Overview of the LEED rating system for Commercial & Residential applications
- How geothermal heat exchange is being used to attain LEED Credits on the Woodall Rogers Park Project, Dallas, TX

**3:55 - 4:35 GEOEXCHANGE INSTALLATIONS - RULES and REGULATIONS**

**WL Stribling, Manager, TX Dept. of Licensing and Regulation, Compliance Division, Austin, TX**

- Health concerns from installation and/ or operation of geothermal systems
- Environmental & water resources concerns from drilling, heat exchange or well failure
- Current regulatory requirements in Texas
- “Paperwork” burden 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

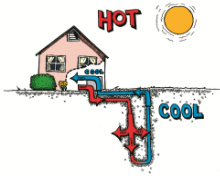
**4:35 - 4:45 WRAP-UP, QUESTIONS AND CEU SIGN-OUT**

**4:45 ADJOURN**

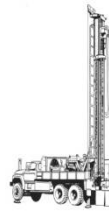
**"BEST ONE DAY PROGRAM!"**

**Hotel information: Hilton Garden Inn Dallas Market Center  
2325 N. Stemmons Freeway, Dallas, TX 75207**

(Call 1-877-STAY-HGI for room reservations at \$95.00 – block open until June 1)



Another Education Program from:  
**American Ground Water Trust**  
 50 Pleasant Street (Suite 2)  
 Concord, NH 03301



# GEOHERMAL

## Ground Source Heating & Cooling Workshop

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- ☞ NATURAL GAS HAS ENVIRONMENTAL PRESSURES
- ☞ NUCLEAR ENERGY IS LESS CERTAIN
- ☞ OIL PRICES ARE RISING

☞ **GEOHERMAL IS GROWING!**

**!! DON'T GET LEFT BEHIND !!**

**GEOHERMAL PROGRAM - REGISTRATION FORM**

**Thursday June 9<sup>th</sup> 2011 - Hilton Garden Inn Dallas Market Center**

[Walk-in registration (on day of event) \$225]

Check box

<b>Registration (General)</b>	<b>\$185</b>	<input type="checkbox"/>
<b>Registration (AGWT Members)</b>	<b>\$150</b>	<input type="checkbox"/>
<b>Registration (Full-time Student) (ID required)</b>	<b>\$ 90</b>	<input type="checkbox"/>
<b>CD of Presentations</b>	<b>\$ 15</b>	<input type="checkbox"/>
<b>Exhibit Table (does not include registration)</b>	<b>\$200</b>	<input type="checkbox"/>

**TOTAL \$ \_\_\_\_\_**

**PAYMENT:**  Check *[payable to: American Ground Water Trust]*

AMEX     Visa     MasterCard     PO

**Credit Card or PO No.** \_\_\_\_\_ **Expiration** \_\_\_\_\_

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**Company/ Organization** \_\_\_\_\_

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**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**CANCELLATION POLICY**

- Cancellations received in the AGWT office by 5 pm EST 5 days prior to event will receive a full refund less \$25.
- For cancellation 4-2 days prior to the there is a 50 % refund.
- Cancellations one day prior to the start of the event or on the day of the event are considered "No Shows" and no refund will be made - (substitutions gladly accepted).
- The Trust will not cancel a program because of bad weather conditions. Except that, as the result of an event cancellation resulting from, (but not limited to) circumstances such as a state mandatory evacuation or a fire at the program facility, the Trust will reschedule the event and honor registrations as payment for the new event.

**Return by mail: American Ground Water Trust, 50 Pleasant Street, Concord, NH 03301**

**Return by fax: (603) 228-6557    Call to register (800) 423-7748**

**Register on line <http://www.agwt.org> (Conferences/workshops)**