

Geothermal Education Program – Boxborough MA -
Get up to speed with state-of-the-art information about “Geothermal” technology and its applications

USING THE EARTH'S RENEWABLE ENERGY

Tuesday April 19, 2011 (8:15 – 4:45)

Holiday Inn, Boxborough, Massachusetts

(Exit 28, Interstate 495. Boxborough is 30 miles west of downtown Boston)

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



In partnership with:

New England Geothermal Professional Association (NEGPA)



Sponsors:

Baroid IDP



ClimateMaster



Preferred Pump



In cooperation with:

Geothermal Heat Pump Consortium and International Ground Source Heat Pump Association

Continuing Education Credit

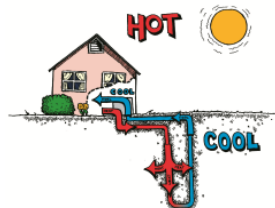
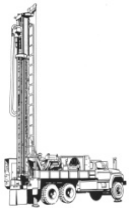
Architect Credits - 7.25 LUS (for HSW and Sustainable Development) through the AIA (Provider # 521)

American Society of Home Inspectors - 7.0 ASHI® CE Credits

IGSHPA Accredited Installers – 0.75 CEUs

Wastewater Treatment Plant Operators – 3 Contact Hours approved through the MA Board of Certification (BC-2011-2365)

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

7:15 – 8:15 REGISTRATION (coffee and donuts provided)

8:15 - 8:30 INTRODUCTION

Jackie Daoust, Policy Analyst, 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 “GEOHERMAL” INDUSTRY

Richard Gibson, District Region Manager, ClimateMaster, Stewartstown, PA

- 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 GROUND SOURCE EARTH COUPLING DESIGN PRINCIPLES

Carl Orio, Chairman, CGD, AI, , Water Energy Distributors, Hampstead, NH

- Principal methods: (Closed loop – vertical, horizontal (slinky) pond) - (Open system – to surface, to diffusion) – (Standing Column)
- Weighing positives and negative aspects of each earth coupling method
- Design and cost 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

9:50 – 10:10 BREAK

10:10 -10:50 GROUND SOURCE HEAT PUMP SYSTEMS - THE FUNDAMENTALS

Mark Worthington, President, Underground Energy, LLC, Southborough, MA

- Understanding the basic physics of the heat transfer process
- Explanation of terminology (geoexchange, 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
- What makes a “good” system? What should a home inspector, Realtor or purchaser look for?

10:50 – 11:20 GEOTHERMAL EXPLORATION AT TUFTS UNIVERSITY

Dr. Grant Garven, Professor of Geology, Adjunct Professor of Civil & Environmental Engineering, Tufts University, Medford, MA

- Geological and geophysical characterization.
- Challenges of exploration in an urban environment.
- Design, materials and implementation of bedrock wells.
- Importance of adding “geothermal” to geoscience training/education

11:20 – 11:50 ENERGY UTILITIES PROMOTE GEOTHERMAL FOR HOMES AND BUSINESSES

Carlos Alonso-Niemeyer, Program Manager, Energy Efficiency Services, NSTAR, Westwood, MA

- Why an investor-owned electric and gas utility cares about geothermal
- Technical expertise and financial incentives for energy efficient homes
- Potential impact of utility “green incentives” to stimulate demand to geothermal installations

11:50 – 12:20 APPROACHES TO GEOTHERMAL PROJECT FINANCING

Robert Thompson, VP Project Development, Spectrum Construction & Energy Solutions Corp, Boston, MA

- Project financing made simple
- Advantages for commercial customers
- Examples from New England

12:20 – 1:20 LUNCH (Provided on site)

1:20– 1:30 NEW ENGLAND GEOTHERMAL PROFESSIONAL ASSOCIATION

Kevin Maher, Co-Founder and President, NEGPA

- The Need for a New England Geothermal Association
- NEGPA Mission
- Progress timeline
- Invitation to Reception at 4:45pm

1:30 – 2:10 GEOEXCHANGE WELL / BORE CONSTRUCTION

Jeffrey Quinn, Account Representative, Baroid IDP, Nottingham, NH

- 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

2:10 – 2:50 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

2:50 – 3:10 BREAK

3:10 – 3:50 GEOEXCHANGE SYSTEM INSTALLATIONS - The LEED Perspective

Peter Governale, President, Tuscany Design Build, Inc. South Windsor, CT

- Explanation of Leadership in Energy and Environmental Design (LEED)
- How geothermal fits with United States Green Building Council (USGBC) objectives
- LEED evaluation methods for commercial and residential heating and cooling systems
- New England examples of highly rated geothermal installations

3:50 – 4:30 GEOEXCHANGE INSTALLATIONS - RULES and REGULATIONS

Joe Cerutti, Hydrogeologist, MA Dept of Environmental Protection, Boston, MA

- Overview of "Geothermal" regulations throughout the New England states
- Current regulatory requirements in Massachusetts (state and local)
- Application requirements for installation of a geothermal well/system
- Well construction requirements
- Licensing requirements for well and heat-exchange equipment installers
- Water quality testing requirements for open-loop wells
- Environmental and health concerns from geothermal installation/ operation

4:30 – 4:45 WRAP-UP AND ADJOURN

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

4:45 – 6:00 RECEPTION (Cash bar)



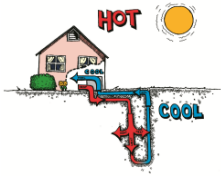
“NEGPA, get-to-know-you ~ get-to-know-us”



Program Venue - Hotel information

Holiday Inn, Boxborough, Massachusetts, 242 Adams Place, Boxborough, MA 01719
(Exit 28 from Interstate 495 north or south) (Free parking)

To obtain the special sleeping room rate of \$99 call 978 889 1714, ask for Lynn Morgan and say you are attending the American Ground Water Trust Geothermal Education Program.



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



GEOTHERMAL

Ground Source Heating & Cooling Workshop

Tuesday April 19, 2011 – (8:15 to 4:45) - Boxborough, MA
 Holiday Inn Boxborough (30 miles west of downtown Boston - Exit 28 off Interstate 495)

- ☺ Find out how to save thousands of dollars in energy costs
- ☺ Learn state-of-the-art technical information on geothermal
- ☺ See how geothermal fits with state & federal energy policy
- ☺ Hear firsthand about New England success stories
- ☺ Network with designers, manufacturers & installers
- ☺ Get the regulatory perspective on geothermal
- ☺ Obtain Architect Credits - 7.25 LUS

GEOTHERMAL PROGRAM - REGISTRATION FORM (print – fax, mail or call to register)

Tuesday April 19, 2011 (8:15 – 4:45) Holiday Inn, Boxborough, MA

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

Check box

Registration (General)	\$190	<input type="checkbox"/>
Registration (NEGPA Members)	\$165	<input type="checkbox"/>
Registration (AGWT Members)	\$165	<input type="checkbox"/>
Registration (Student) (ID required)	\$ 90	<input type="checkbox"/>
CD of Presentations	\$ 15	<input type="checkbox"/>
Exhibit Table (does not include registration)	\$200	<input type="checkbox"/>

TOTAL \$ _____

PAYMENT: Check [payable to: American Ground Water Trust]
 AMEX Visa MasterCard PO

Credit Card or PO No. _____ **Expiration** _____

Cardholder Name _____

Registration Name _____

Title/Position _____

Company/ Organization _____

Address _____

City _____ **State** _____ **Zip** _____

Phone _____ **Fax** _____ **E-Mail** _____

SPONSORSHIP & EXHIBITS

There are opportunities to showcase company achievements, expertise, projects, products and services
 Call 800 423-7748
 Sponsors receive recognition

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)