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GEO THERMAL

GROUND SOURCE HEATING & COOLING FOR BUSINESS, COMMERCIAL, AND MULTIPLE OCCUPANCY PROPERTIES

Latest Technologies, Economic Advantages,
Environmental Impacts and Regulations

NEW DATE!!!

Wednesday, November 28, 2012,

(8:10 – 4:45)

MTA New York City Transit
20th floor, 2 Broadway, Manhattan, NY 10004



Presented by:

American Ground Water Trust

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

SPONSORS:

Baroid IDP

ClimateMaster

Preferred Pump

Geothermal Exchange Organization



In Cooperation with:

Associated Builders and Owners of Greater NY
Association for Facilities Engineering – Westchester Tri-State Chapter
Connecticut Geothermal Association
Electric and Gas Industries Association
Geothermal National & International Initiative
International Ground Source Heat Pump Association
Long Island Geothermal Energy Organization
New England Geothermal Professionals Association
New York State Builders Association – Research and Education Foundation

ARCHITECTS, HVAC DESIGNERS, BUILDING OWNERS AND MANAGERS - YOU SHOULD ATTEND

This program is geared to building owners and to professionals who design, install, inspect, approve, recommend or regulate heating & cooling systems. Commercial buildings account for about 20% of the energy consumed in the United States. Geothermal has the potential to become the HVAC technology of choice because of the proven economics (payback and return on investment). It is a powerful renewable and efficient "green energy" option for business, commercial, institutional and residential installations.

In addition to potential end-users, this program is a MUST for energy company engineers, architects, planners, building code inspectors, environmental health professionals, drilling contractors, HVAC professionals, real estate agents, developers, and town officials. Don't miss this "one-stop-shop" opportunity to get up to speed with this technology. It is coming to buildings near you! Small footprints and down-town locations are not a barrier to the technology.

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. 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 in urban areas involves accessing the sub-surface by drilling vertical bores. 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

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.

7:15 - 8:10 REGISTRATION (coffee and donuts provided)

8:10 - 8:20 WELCOME

Thomas Abdallah, Chief, Environmental Engineering, MTA New York City Transit, NY

8:20- 8:35 INTRODUCTION – ENERGY AND SUSTAINABILITY

Garret Graaskamp, PG, Hydrogeologist, 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)

8:35 - 9:10 THE STATUS OF THE "GEOHERMAL" INDUSTRY

John Bailey, Senior Vice President, ClimateMaster, Oklahoma City, 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 GROUND SOURCE HEAT PUMP SYSTEMS - THE FUNDAMENTALS

John Sima III, PE, Principal, Hydro Dynamic Engineering, LLC, Southington, CT

- 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
- Aquifer thermal energy – a technology whose time is imminent?
- Computer models available for geothermal design

9:50 – 10:30 GROUND SOURCE EARTH COUPLING DESIGN PRINCIPLES

Howard Alderson, PE, Principal, Alderson Engineering, Inc., Southampton, PA

- Explanation of the methods:
 - Closed loop – vertical, horizontal (slinky)
 - Open system – to surface, to diffusion
 - Heat exchanger systems for surface water (Rivers, 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?
- Common misconceptions about the geothermal earth coupling

10:30 – 10:45 NETWORKING BREAK

10:45 – 11:20 GEOLOGY BENEATH NEW YORK'S FIVE BOROUGHES – Geo Design Implications

John Rhyner, PG, Senior Project Manager, P.W. Grosser Consulting, Bohemia, NY

- Subsurface conditions due diligence
- Where is the Rock?
- Implications of bedrock depth and condition for standing column wells and closed loop systems
- Permitting and Regulations – Staying between the lines
- NYC requirements for drilling near public water supply tunnels
- Influence of groundwater quality on open loop system performance

11:20 – 12:00 ROLES OF NY STATE REGULATORY AGENCIES IN ADVANCEMENT OF GEOTHERMAL TECHNOLOGY

Jack DiEnna, Executive Director, Geothermal National & International Initiative, Washington, DC

- Status of pending legislation regarding geothermal
- Viewing geothermal as "renewable" not simply as "energy efficient"
- Marketing implications for geothermal loops as "renewable"

12:00 – 12:20 KEYNOTE ADDRESS – NYC COUNCIL MEMBER- JAMES F. GENNARO

Third-term Council Member James F. Gennaro represents New York City's 24th Council District located in Queens. Gennaro is Chairman of the Council's Committee on Environmental Protection which oversees legislative efforts to cut the city's global warming pollution emissions, protect and restore Jamaica Bay, put more "clean air" vehicles on city streets, reduce pesticide use, make the city's electricity more reliable, clean, and affordable, protect the city's remaining natural areas, and promote "green buildings." Before being elected to the Council, Gennaro served as a Senior Policy Advisor to former New York City Council Speaker Peter Vallone, Sr. and as an adjunct professor of political science and environmental public policy at Queens College.



12:20 – 1:10 LUNCH (Provided on site)

1:10 – 1:50 GEOEXCHANGE WELL / BORE CONSTRUCTION

Jeff Quinn, Field Services Technical Representative, Baroid IDP, Nottingham, NH

- Drilling in densely built-up areas
- Basic difference between drilling fluids and sealing grouts
- Matching the drilling technology to the geological conditions
- Collecting geologic & water quality information for the geothermal designer
- Drilling for standing column and dual purpose (water supply and geothermal wells)
- Techniques of grout placement to meet geothermal design specifications

1:50 – 2:30 HYBRID GEOTHERMAL SYSTEMS – Installation Cost Savings

Dennis Meyer, PE, Director of Commercial Sales, ClimateMaster, Oklahoma City, OK

- 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

2:30 – 3:10 FINANCING INNOVATIONS FOR GEOTHERMAL INSTALLATIONS

Paul Bony, Director of Residential Market Development, ClimateMaster, Montrose, CO

- Best practices for implementation based on financing and geexchange programs.
- Consumer-friendly long term financing for "new" or "retrofit"
- How utilities can establish geexchange by leveraging federal tax credits
- On-Bill financing methods
- Utility loop ownership – own the loop and recover cost over time

3:10 – 3:25 NETWORKING BREAK

3:25 – 4:05 A UTILITY FINANCING MODEL – Pay as you go for Geothermal Installations

David Neale, Marketing and Business Development, EnergyWise Partners LLC. Rochester, NY

- What is a GSHP Utility Financing Model ?
- What type of energy monitoring is needed to document BTU usage?
- How does monitoring enhance system support and warranty?
- Can this model be retrofitted to existing installations?
- How does the utility financing method work to increase GSHP HVAC system sales?
- What does a Geo Utility contract look like to a property owner?

4:05 – 4:45 CASE STUDIES OF SUCCESSFUL METROPOLITAN GEOTHERMAL PROJECTS

John Rice, PE, Partner, AKF Group, New York, NY

- Key considerations when retrofitting a multi-story building for geothermal space conditioning
- General Theological Seminary, Ossining NY (Standing Column Well)
- Hudson River Loop System – Confidential Client
- Brooklyn Navy Yard – Building 92 (Open Loop)
- Trevor Day School, Manhattan (Energy Pile System)

4:45 ADJOURN