Optimizing GSHP Systems

Commercial GSHP system installations are becoming more common as the concern for the environment and the cost of energy are increasing, In some cases, they can even have a lower installed cost. They are taking a greater share of the mechanical system market, as even developers in crowded downtown areas are forcing designers to look at geothermal systems. Designers are often hesitant to consider geothermal systems because they are unfamiliar with them… they are beyond the comfort zone.

By learning how to optimize the design of the system and becoming comfortable with the technology, you as a system designer or installer will feel more comfortable in responding to your clients needs to reduce energy costs and their impact on the environment.

The first goal of this 2-day class is to familiarize you with the terminology and technology used in commercial GeoExchange applications, provide other options that are available on many of the sites and buildings your clients come to you with, and identify common concerns and solutions before they become issues.

The second goal of the class is to go through the step by step process needed to design a ground heat exchanger (GHX) for a specific building on a specific site. The course will define what information is required before you can use closed loop design software, and the options you have to work with. It will show you the effect of the system you have designed, the equipment you are working with, the fluids you specify, how different options impact installation costs, commissioning considerations, and identification of LEED points commonly missed with a GSHP system. In addition to that you will have the opportunity to meet other people working in this industry who can help you avoid some of the more costly "learning experiences".

Practical GeoExchange Solutions

Phone: 763-479-3121, 303-424-3949 or 204-204-255-5959
E-mail: David.HenrichBergersonCaswell.com

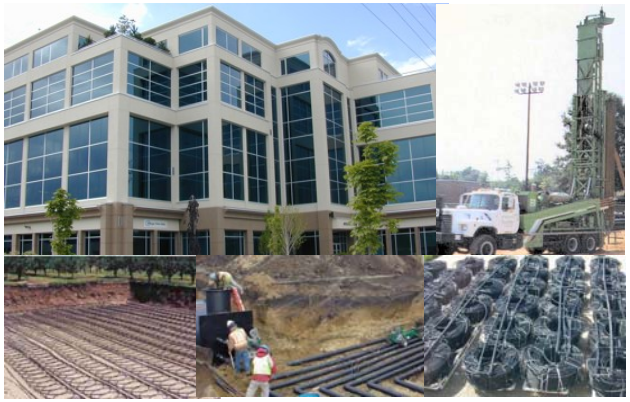
Optimizing GSHP Systems

Presented by Thermal Dynamics Inc.

Designers can often design a ground-source heat pump system that works

An effective designer will design a ground-source system that is:

- *Cost-effective to install*
- *Simple to install*
- *Simple to maintain*
- *Optimizes performance*



This 2-day course in geothermal system design utilizes the combined experience of 40 years from people with real-world experience. It will provide you with information and methods to optimize and enhance the design of your closed loop GSHP systems.

Practical GeoExchange Solutions

Practical GeoExchange Solutions
303-424-3949

January 15-16, 2008
Denver, CO

Practical GeoExchange Solutions

GeoExchange professionals dedicated to cost-effective design through training, consultation and design evaluation

Commercial GSHP Design

Thermal Dynamics will host a two-day commercial GSHP design course in Denver, Colorado, November 13 through 14, 2007. The venue will be at the Sheraton Denver West, Lakewood, CO. This Tuesday through Wednesday course will focus on the variables many engineers, architects and designers need to be aware of, and resulting impact on the final scope, viability and cost of their project.

The course structure will provide overviews and examples of real-world commercial projects, and how these projects were approached, identification of solutions, and how to test these solutions using commercial loop design software.

Who Should Attend?

Professional Engineers & Architects – You should be familiar the basic operation of water-source heat pumps, fundamentals of loop design theory, monthly/hourly load calculations, load durations vs. ground loop capacity, and hybrid loop systems. Previous GSHP experience and IGSHPA installer accreditation are strongly advised.

Heating & Cooling Contractors – For the advanced, experienced mechanical contractor comfortable with design-build GSHP projects. Must be able to understand the difference between peak load calculations, monthly and hourly loads, fluid requirements of water-source heat pumps, and basic loop design theory. Previous GSHP experience and IGSHPA installer accreditation are strongly advised.

About the Instructors

Ed Lohrenz, CGD, Principal
Practical GeoExchange Solutions
GeoXergy Systems Inc. (geoexergy.com)

Ed Lohrenz has worked in the geothermal industry since the early 1980's as a residential system designer, and installer, and an equipment distributor in Western Canada. In 1984, Ed began exploring integrated geothermal ice rink and ice storage systems and is now recognized as one of the most experienced low-temperature heat pump experts in the industry. Between residential and commercial projects, Mr. Lohrenz has well over ten thousand tons of heat pump capacity operating throughout North America and Asia that he has directly designed or consulted on. He is an accredited installer and trainer for the International Ground Source Heat Pump Association (IGSHPA), a Certified GeoExchange Designer (CGD), ASHRAE member, and trainer for the Canadian GeoExchange Coalition (CGC). He is founder and president of GeoXergy Systems Inc., a consulting and design firm servicing the GeoExchange industry.

Terry Proffer, CGD, Principal
Practical GeoExchange Solutions
Major Geothermal (majorgeothermal.com)

Terry Proffer has been involved in the GSHP industry since 1993. Prior to this time, he spent over 15 years as a geologist in the petroleum industry before entering a second career in the mechanical trades. Mr. Proffer is accredited as an installer and installation trainer by IGSHPA,, and a Certified GeoExchange Designer. His residential and commercial experience includes heat load analysis, loop design, thermal conductivity testing, and field installations; his system designs drive forced air, radiant, snowmelt, domestic hot water and industrial process water applications and his expertise is often used for independent peer review of other system designs, design validation and commissioning. Mr. Proffer has designed, consulted or installed on thousands of tons of heat pump capacity throughout the continental U.S, Canada and Asia, and trained over 500 contractors and engineers through IGSHPA, PGS and field training classes. Terry is one of the few practicing Certified GeoExchange Designers in Colorado, is a factory-certified ClimateMaster trainer, and is a member of Rocky Mountain ASHRAE.

Practical GeoExchange Solutions

GEOXERGY SYSTEMS INC.

MAJOR GEOTHERMAL

Ed and Terry have been involved in the GSHP industry for several years, and collaborated on a variety of commercial GSHP projects over this time. They are both admitted "Geo-Junkies", and wish to share the experience they have gained, often through hands-on experience, to expand the industry. This commitment to the industry is the basis for the formation of Practical GeoExchange Solutions, a joint venture between their two firms.

Co-sponsored by ***Thermal Dynamics (www.groundloopdesign.com)***

Thermal Dynamics

Registration Form

Date: January 15-16, 2008
Practical GeoExchange Solutions (U.S. office)
6285 West 48th Avenue
Wheat Ridge, CO 80033
303-424-3949

Info@groundloopdesign.com, ed.lohrenz@geoxergy.com
loopman@majorgeothermal.com

www.groundloopdesign.com, www.geoexergy.com, www.majorgeothermal.com

Name:_____

Company Name:_____

Mailing Address:_____

City, State/Prov, Zip:_____

Telephone:_____

Fax:_____

Email:_____

Cost is $1200 USD. Includes ASHRAE manual "Design of Geothermal Systems for Commercial & Institutional Buildings" (Kavanaugh & Rafferty), continental breakfast, lunch & refreshments for both days.

****** Bring your laptop computer! ******

☐ Check (payable to Major Geothermal — please enclose with mailed registration)

☐ Credit card — Type: Mastercard ☐ Visa ☐

Credit card #:_____

3 Digit security code:_____

Expiration date:_____

Name on card:_____

Signature:_____

Upon receipt of registration, an information packet will be forwarded with a map, lodging rate, syllabus and list of items to bring.

Last date to cancel for refund: **December 28, 2008**.

Should sufficient registrations not be received within two weeks of the start date of the class, Practical GeoExchange Solutions reserves the right to cancel the course. All registration fees shall be returned in the event of insufficient registrations.