

## GeoExchange© Accreditation

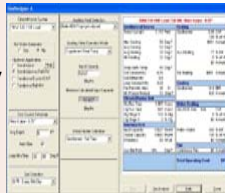
The IGSHPA syllabus will be followed, and is not product specific. Information will be provided for harsh heating and cooling climate conditions, inconsistent geologic environment and other variables characteristic of the Rocky Mountain region, and how to address these impacts for competent, economic installations.

Closed loop requirements for both residential and commercial applications will be reviewed. Attention will also be given to commercial design parameters, peripheral considerations, radiant/hydronic applications, thermal conductivity testing, quality control of loop installations and related issues. Requirements to satisfy closed loop installation requirements and contractor licensing by the Colorado Division of Water Resources will also be covered.



## Residential Loop Design

An optional one day residential loop design course will follow the 3 day IGSHPA program. This short course focuses on the use of any standard residential loop design software for designing closed loop heat exchangers, operating cost estimates and other calculations for applications where the loads are climate-driven. Topics covered will include selection of appropriate climate libraries for project analogs, how the software uses regional temperature data, selection of heat pump capacity and other input data. The students will learn how to design vertical, horizontal and surface water closed loop systems and configure them for ease of installation and maximum efficiency.



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*Installing GSHP systems provides contractors a more effective option for better margins. Customers will benefit from reduced operating costs and long term reliability, with reduced environmental impact.*



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## GeoExchange© Training IGSHPA Accreditation Residential Loop Design

Sponsored by  
Major Geothermal  
Wheat Ridge, Colorado  
GSHP Wholesale, Design,  
Consulting & Training



November 16-18, 2009  
IGSHPA Course  
November 19, 2009  
Residential Loop Design

Location:

Tri-State Generation &  
Transmission



Instruction:  
Terry Proffer, CGD  
IGSHPA Certified Trainer

17 years in the  
GSHP industry



WE HAVE BEEN TRAINING PROFESSIONALS TO DESIGN AND INSTALL GEOTHERMAL SYSTEMS IN THE ROCKIES & THE NATION SINCE 2001

**Phone:** 303-424-1622 **Fax:** 303-423-6795

[www.majorgeothermal.com](http://www.majorgeothermal.com)

## GeoExchange® Installation Training

This 3 day seminar will provide the required manuals, instruction and examination for installer accreditation by the International Ground Source Heat Pump Association. Pipe fusion accreditation will also be provided for both butt and socket fusion techniques.

### Residential Loop Design

The 3 day IGSHPA seminar will be followed by an optional one day residential loop design workshop. Bring your laptop and favorite software, or we will provide USB security keys to use GLD's LEAD+ during the class (downloadable at no cost from [www.groundloopdesign.com](http://www.groundloopdesign.com)).

### Who Should Attend?

**Heating & Cooling Contractors** – This course addresses the requirements for a competent ground heat exchanger installation, review of compatible load calculations, selection of heat pump equipment, what to consider when planning a project, minimum standards, tools, quality control checks, trouble shooting, pipe fusion, etc., and tying the system into a heat pump system through functional performance testing. The course covers the capabilities of GSHP-driven forced air cooling & heating, hydronic heating and domestic hot water applications. Upon successful completion of the examination the student is accredited by IGSHPA as a Geo-Exchange installer. Students should at least be familiar with the fundamentals of refrigeration.

**Drilling & Excavation Contractors** – Understand the requirements and fundamentals for loop installations, qualify for responses to GeoExchange® installation RFQ's. The course will also review Colorado Division of Water Resources requirements for closed loop heat exchanger installation and contractor licensing.

**Architects, Professional Engineers** – By understanding the types of conditioning possible, design criteria, planning considerations, and awareness of what to do when considering a GeoExchange® system for your client, you will help reduce costs and increase end-user satisfaction.

**Builders** – Builders utilizing GeoExchange® installations set themselves apart from their competition and provide a better product for their client. Be informed on the requirements for these systems and mechanical contractor qualifications to provide your clients with a competent installation.

**Utility Personnel** – By understanding how a Geo-Exchange® system operates, and the importance of a quality installation to professional standards, utility people can better serve their customer base and management when questions or decisions concerning this technology demand technical input.

### About the Instructor

Terry Proffer, CGD, Major Geothermal, is accredited as an installer and certified as an installation trainer by the International Ground Source Heat Pump Association, is a Certified GeoExchange Designer, and a factory certified ClimateMaster installation and service instructor. The instructor's experience range includes residential and commercial 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. Over the past 17 years Mr. Proffer has designed and consulted on projects throughout North America, Asia and Europe.

*For more information about the benefits of IGSHPA accreditation for construction professionals, why end-users are increasingly demanding GeoExchange® installations, and more information about this fast growing industry, please reference: [www.igshpa.okstate.edu](http://www.igshpa.okstate.edu) and [geothermalheatpumpconsortium.org](http://geothermalheatpumpconsortium.org).*

Location:

**Tri-State  
Generation & Transmission  
1100 W 116th Ave  
Denver, CO 80234**

**Three Day Class IGSHPA—\$895  
One Day Residential Loop Design— add \$30  
(concurrent with IGSHPA course)  
One Day Residential Loop Design—\$100  
(without IGSHPA course)**

**Questions?** – Please contact:

**Mr. Micah McKinnies  
Major Geothermal  
303-901-2576, 303-424-1622  
[micah@majorgeothermal.com](mailto:micah@majorgeothermal.com)**



Registration—please print or type, return by fax or mail:

Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

- 3 day IGSHPA course, Nov. 16-18 2009, \$895
- 3 day IGSHPA course + 1 day Residential Loop Design course, Nov. 16-19 2009, \$925 (if also taking the IGSHPA course)
- 1 day Residential Loop Design course (no IGSHPA course), Nov. 19 2009, \$100
- Check (please enclose in 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, list of lodging facilities, course description and recommended preparation. Please register no later than November 2, 2009 to allow for preparation and acquisition of materials. Should we not receive sufficient commitments prior to this date, Major Geothermal reserves the right to cancel this seminar. Should this occur a full refund will be provided.

Return to:

**Major Geothermal  
re IGSHPA Accreditation  
6285 W. 48th Ave.  
Wheat Ridge, CO 80033**

**fax: 303-423-6795 email: [micah@majorgeothermal.com](mailto:micah@majorgeothermal.com)**