Trenchless TECHNOLOGY Webinar

Webinar Session: Understanding Geothermal Opportunities and Challenges

Presented by: Ed Savage, Trenchless Segment Manager, Vermeer Corporation, and John Clapp, Director of Training Programs, International Ground Source Heat Pump Assoc

Sponsored by: Vermeer Corporation

Q&A Session

Q: do you have summaries of the content of the 3 training programs and more info in general ?
A: Additional information on the training programs offered by IGSHPA can be found online at www.igshpa.okstate.edu. Also, the IGSHPA staff is always very willing to explain and answer any questions you may have, our phone number is 1-800-626-4747.

Q: what are the typical wall thicknesses for the HDPE pipe when using vertical wells?
A: The HDPE pipe used in GSHP systems will be either SDR 11 or SDR 9 pipe. This is simply a ratio of the wall thickness to the pipe diameter, similiar to Schedule 40 & 80 pipe. Most vertical residential systems will utilize either 3/4" or 1" pipe. Most commercial systems will use 1 1/4" vertical pipe.

Q: what type of soils should the pipes be in for the system to work
A: A GSHP system can be installed in and work properly in any type of soil. Soils with very low thermal conductivity will require greater amounts of pipe installed to achieve the required heat transfer.

Q: In locations where freeze thaw cycles are common, how often is the special antifreeze changed (life of the antifreeze). What is the cost difference between fluids used in non-freeze thaw locations?
A: Ground source heat pump systems are closed-loop piping systems. Thus, the antifreeze utilized will remain there for the life of the system and will not need to be changed. Typical antifreezes will be Methanol, Ethanol and Propylene Glycol. Always check local codes for allowable antifreeze solutions.

Q: isn't Freon generally outlawed for use in ac systems?
A: The refrigerant used in GSHP systmes is primarily R 410-A refrigerant, older systems use R 22 refrigerant. These are the same refrigerants used in conventional A/C Systems. Remember, the refrigerant does not enter the piping going into the ground.

Q: what is expected service life of typical residential installation
A: Most pipe manufacturers offer a 50 year warranty on the pipe used in the ground heat exchanger. The indoor equipment often has an expected life of 20 years. However, the life of the system depends greatly on the area, use of the system and how well it is maintained.

Q: To what extent is a geotechnical engineer required to mitigate complex soil and groundwater conditions?
A: A qualified designer with experience in designing ground heat exchangers will be able to design a properly performing system regardless of the ground conditions. A primary function of commercial design is doing a soil thermal conductivity test to determine the actual conditions of the soil and factor that into the design of the system. A geotechnical engineer is not often required solely due to the design of a geothermal system.

Q: What are the approximate costs for a typical residential structure in the southeastern US?
A: The installation cost can vary greatly, depending on location and design. Because GSHP systems include more installatin labor for the ground heat exchanger when compared to a conventional system, residential systems often cost approximately 25%-50% more than a comparable conventional system. Commercial systems are very often in the same expense range as a comparable conventional commercial system.

Q: What training do you have planned for this year or early next year for Engineers in Alabama?
A: IGSHPA has a calendar of Training Events posted online at www.igshpa.okstate.edu. The closest CGD workshop that I have scheduled currently for the Southeast US area is in Washington DC in December - additional information can be found online.

Q: At this time are there energy tax credits specifically for the state of Alabama?
A: Yes, there are federal tax credits available until January 1, 2016. 30% of the installation cost for residential and 10% (+other benefits) for commercial. Check www.dsire.com for a listing of state incentives.

Q: You stated that HDD Contractors are involved in some of these installations for the geo market. I've seen practically none of these contractors getting involved. What % would you say of HDD contractors are currently involved in this market.
A: We see the majority of HDD contractors being involved in loop installations in the Midwest states.