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Program: Design and Economics of Commercial Ground Loop Heat Pump Systems

Location of Meeting: Essence of Coffee 908 Main,
Lunch on your own

Presented by: Alan Niles

This presentation discusses the economic impact of project specific variables as well as decisions made, and sometimes not made, by the design engineer and how defining these details can greatly reduce the first cost of a Ground Loop Heat Pump (GLHP) system. After a quick overview of the components of the GLHP System and the basic design and installation of the ground loop, Commercial Ground Loop Design Software is reviewed and then utilized to illustrate the economic impact of project specific variables. This discussion concludes with hybrid system design and the additional first cost reductions that hybrid systems offer with minimum impact to the operating cost of the system.

Learning Objectives:

- 1) Learn the three primary design variables of a commercial ground loop system and their impact on the economics of the system
- 2) Learn how to optimize the performance of the system
- 3) Learn the benefits of hybrid ground loop designs

Alan Niles

Western Region Commercial Sales Manager, WaterFurnace International
Gig Harbor, WA

Alan Niles is a mechanical engineer with over 28 years of experience working for manufacturers of commercial water source heat pumps (WSHPs) and ground loop heat pumps (GLHPs) concentrating on commercial tower/boiler system design and commercial geo-exchange system design. Since 2009, he has been at WaterFurnace International, a manufacturer of commercial 6 Pipe Modular Heat Recovery Chillers and commercial Water Loop and Ground Loop Heat Pumps.

Starting in July 2015, Alan Niles will begin his second two year post as a Distinguished Lecturer for ASHRAE, speaking on the topics of economics and design of commercial ground loop systems. In 2013, Alan Niles' article "Net-Energy Water Loops," published in the August edition of HPAC (Heating/Piping/Air Conditioning) Engineering, introduces the use of the water loop systems as the integral building block for a building-wide net zero energy system. And in March, 2015, Alan Niles and WaterFurnace, and cosponsored by HPAC Engineering, held a webinar on the use of the net energy water loop combined with simultaneous chilled water/hot water production using 6 pipe heat recovery chillers to achieve net zero energy goals.



President's Message

All

I hope this message reaches you in good health. We will be trying a new venue this month at Essence of Coffee. Please provide feedback on the location and if you'd like to continue using their tea room for programs. They are located at 908 Main Street opposite side of the Federal Building. As always please bring a friend.

I am excited about this month's program, as indicated in the Bio Alan has been an ASHRAE DL for two years. I look forward to his presentation on net zero geothermal water loops and hope to see you there.

Thank you
Ethan Grover

Chapter Programs Schedule

Below is a listing of this year's programs. Please call or e-mail suggestions for programs as indicated below:

September 19, 2016	Constant Speed Pumping VS Variable speed Pumping	Andrei Hari
October 27, 2016	Rapid City Water Reclamation Facility Tour.	Clyde Jones
November 17, 2016	Design and Economics of Heat Pump Systems	Alan Niles
December XX, 2016	The Importance of Humidification	Webinar
January 19, 2017	Electro Technology Expo/ASHRAE Distinguished Lecturer	Dan Int-Hout
February 16, 2017	Architectural and Engineering Arbitration	Joe Lux
March 17, 2017	Picking the Right Fan (Twin City Fans)	TBD
April 21, 2017	TBD	TBD
May 19, 2017	TBD	TBD

Send program suggestions to: Ethan Grover
(P) 605-373-3812
(F) 605-373-3859
programs@blackhillsashrae.org

Membership

If anyone knows of someone who might be interested in becoming a member of ASHRAE, contact Mike Malone at:
membershippromotion@blackhillsashrae.org

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American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

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