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GEOHERMAL HEAT PUMPS: Technology Transfer-Publications

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KEY WORDS

geothermal newsletters, geothermal brochures, geothermal case studies, geothermal heat pumps, ground source heat pumps, HVAC, heating, cooling

PROJECT BACKGROUND AND STATUS

Geothermal heat pumps (GHP's) used in the residential and commercial heating cooling and water heating market have demonstrated that this technology can cut costs significantly by saving energy and reducing maintenance. A series of articles have been developed and distributed through "The Source" to assist in increasing the awareness of GHP's. These publications have been funded by DOE, DoD and IGSHPA. DOE and DoD jointly funds the development and production of these publications. IGSHPA pays for printing and any additional development costs for the publication.

All the contractual obligations for these publications have been completed.

PROJECT OBJECTIVES

Project objectives are to produce newsletters which introduce the GHP concept to a broad spectrum of audiences. The articles are to assist in convincing individuals the viability of GHP's in their industry, and some to produce facts which gives answers to technical considerations. All these are for the purpose of increasing the number of building customers, installers, developers, engineers and architects who have first hand knowledge of the technology and its potential benefits.

Technical Objectives

- Provide the readers access to information about current activities in the field of geothermal heat pumps.
- Provide information about people in the industry, sources of technical exchange, such as conferences and training sessions, and products.
- Provide a set of successful case studies that will stimulate the reader to further investigation and a greater level of confidence in the technology.
- Provide concise information about specific technical advances and considerations.

Expected Outcomes

- Increased number of users and suppliers involved in the technology.

APPROACH

The approach was to search for information from across the industry and academics that would cover residential, commercial and institutional buildings which is a large portion of the GHP applications.

Information for each of the publications was obtained from all viable sources. The pertinent topics were written and then edited by both IGSHPA staff and external sources in pursuit of accuracy, clarity and meeting the objective of the publications.

RESEARCH RESULTS

The following are examples of the publications:

October 1995

“IGSHPA Who’s Who—Phil Albertson”

Phil Albertson, a person instrumental in designing equipment for GHP applications.

“Reduce Air Pockets With High-Pressure Water”

A pictorial that depicts the steps for eliminating air pockets by high pressure water.

“Technology and Personal Efforts Combine to Make Success”

The success story of Mill Pond, Inc., in Port Republic, NJ, specializing in installing water-source heat pump systems.

November 1995

“Cleveland School Gets Great Savings from GHP System”

The New North Royalton Ohio Board of Education saved \$60,000 on the HVAC budget for its new middle school by choosing a geothermal heat pump for space conditioning.

“Old Arco Arena Renewed with GHP System”

A stadium/concert hall is converted into a three-story, 211,000 square-foot office building, and it utilizes a GHP system to save annual energy costs.

“First Ground Source Unit Installed Near Virgin, Utah”

A newly constructed ranch home near Virgin, Utah, will be the first home in Washington County cooled and heated by a pond.

“Slinky Pipe System Installation Procedure for GHP Systems”

Phil Albertson discusses slinky design, planning, troubleshooting, and installation procedures.

December 1995/January 1996

“IGSHPA Accredits Six More Trainers”

A brief account of the November Train-the-Trainer Workshop.

“IGSHPA Who’s Who—Marvin Smith”

A profile of Dr. Marvin Smith, his current research projects and his engineering background.

“Pine Meadows: Retirement Homes in Canada”

The story of a 195-bungalow retirement subdivision near Fergus, Ontario, utilizing geothermal heating and cooling systems.

“Championing Geothermal Heat Pumps at Naval Facilities”

A retired naval aviator whose interest in energy efficiency led him to become one of the leading proponents of GHP technology.

“The Newly Accredited Trainers”

Photos and brief biographies of the newly-certified IGSHPA trainers.

February 1996

“Wildlife Animal Hospital Goes Geothermal to Conserve Resources”

A Virginia animal hospital and veterinary training center gets a GHP system in a new facility.

“Gauging Ponds for Loop Installations”

Reva Brown discusses the considerations faced by installers when evaluating the suitability of a pond loop installation.

“1995 IGSHPA Committee Reports”

Reports from the Ground Water Interest Group, Marketing Committee, Membership Committee, and Standards Committee from the 1995 conference meetings.

March 1996

“Technically Textbook Residence Rates High in Efficiency”

An IGSHPA member’s GHP-conditioned Colorado residence is scoring points for energy efficiency.

“Who’s Who at IGSHPA: Randy Perry, The Hands-On Man”

A profile of development engineer Randy Perry, his work and his engineering background.

“IGSHPA’s 1996 May Technical Conference: If You Don’t Know Everything, You Should Come”

An overview of IGSHPA’s upcoming technical conference.

“Utility Promotion Pushes GHPs”

The successful promotion program of a Missouri electrical cooperative.

April 1996

“Troubleshooting Checklist Developed”

The Radiant Panel Association’s system checklist for troubleshooting.

“Historical Renovation Employs GHPs”

A historical castle in Wichita, KS, is renovated into a bed and breakfast, and gets GHP space conditioning as well as modern plumbing.

“Castle Residence an Award Winner”

A private residence in Ohio employs GHPs for space conditioning and wins awards for its systems.

May 1996

“Who’s Who at IGSHPA: Larry Eitelman”

A profile of Larry Eitelman, his background in GHPs and marketing, and his long-distance motorcycling hobby.

“IGSHPA’s 1996 Annual Conference Will Be Better Than Ever”

An overview of and agenda for IGSHPA’s 1996 annual conference in San Antonio, TX.

“Keeping The Cows Warm, The Milk Cold, and The Utility Bills Down”

A dairy farmer in Roosevelt, Utah chooses a GHP system for his new facility.

June 1996*“Geothermal System for Bridge De-Icing Under Construction in Amarillo, TX”*

A report on the Highway 87 bridge, a test bridge with geothermally heated bridge deck for de-icing in the winter.

“Contractor Finds Certification Worth the Effort”

Dickie McCurdy, contractor for the Highway 87 bridge project, discusses IGSHPA certification.

“A Research Update: Backfills”

A photographic essay of the flowable backfills research being conducted at Oklahoma State University.

July 1996*“IGSHPA’s 1996 May Technical Conference: Plenty of Everything”*

A brief report on the May technical conference and its highlights.

“Lew Pratsch Honored”

A short biography of Lew Pratsch, winner of the E.B. Penrod Award.

“Ground-Coupled Thermal Energy Systems in Switzerland, Part One”

The first installment of a three-part series on the use of geothermal systems in Switzerland and Swiss methods as compared to American.

“Backfills Research: Preliminary Findings”

A report on the initial findings of the flowable backfills research being conducted at Oklahoma State University.

“Who’s Who at IGSHPA: Some New Faces”

An introduction of three new staff members at the IGSHPA offices in Stillwater, Oklahoma.

August 1996*“Slinky Installation Manual Now Available”*

The announcement and description of IGSHPA’s latest manual, a guide for Slinky design and installation.

“IGSHPA Committee Reports”

Reports and minutes of the committee meetings at the 1996 May Technical Conference.

“IGSHPA’s New Trainers”

The most recent class of Train-the-Trainers certified at IGSHPA.

“Ground-Coupled Thermal Energy Systems in Switzerland, Part Two”

The second installment of a three-part series on the use of geothermal systems in Switzerland.

September 1996*“Park Chase Retrofit May Set a Trend for HUD”*

An update on a GHP retrofit at a HUD project in Tulsa, Oklahoma.

“EEBA Conference Planned for November”

An announcement of EEBA’s conference and its program.

“Ground-Coupled Thermal Energy Systems in Switzerland, Part Three”

The final installment of a series on the use of geothermal systems in Switzerland.

“Bibliography”

The bibliography for the series on the use of geothermal systems in Switzerland.

FUTURE PLANS

IGSHPA will continue to publish the source with the same objectives on a reduced frequency without the funding of DOE and DoD.

INDUSTRY INTEREST AND TECHNOLOGY TRANSFER

Members and non-members alike have responded positively to the IGSHPA newsletter, The Source. Members use the publication to keep up to date with industry news, promote geothermal installations with their clients, and stay abreast of research efforts in the field. Non-members find the publication a useful tool for learning more about geothermal heat pump systems and particularly enjoy reading case studies published in the newsletter. The calendar of events keeps people informed of upcoming conferences, workshops, and other educational opportunities in the geothermal industry.

REFERENCES

Copies of the newsletters are available from the International Ground Source Heat Pump Association. Single sample copies are free of charge but a charge is required for multiple copies.

