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Geo Outlook is published quarterly by Oklahoma State University and the International Ground Source Heat Pump Association (IGSHPA), 1201 S Innovation Way, Suite 400, Stillwater OK 74074. Send questions, story ideas, photos and comments to igshpa@okstate.edu, Geo Outlook, c/o IGSHPA, or call 800-626-4747. Visit our Web site at www.igshpa.okstate.edu.

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NOTES FROM IGSHPA
By Jim Bose
Executive Director: IGSHPA

Retrofit Opportunities and Challenges

The Recovery Through Retrofit proposal promoted by the U.S. Government (Vice President Joe Biden) describes the “unprecedented opportunity” for communities throughout the country. As part of the American Recovery and Reinvestment Act of 2009, the GSHP technology is the epitome of “jobs, jobs, jobs.” The report identifies three major barriers to a National Retrofit Market: Access to Information, Access to Financing, and Access to Skilled Workers.

It is not so much as Access to Information as believability in who can deliver real performance backed by measured results. For those of us in the geo business, there is no question about the technology and economic GSHP value and benefits. All players are advocates, sales persons, and champions of the value. We have an outstanding record of accomplishments.

Access to Financing as proposed makes sense to tie financing to the property and not the owner. This takes away an argument that owners have against making an investment that they may not recover if they relocate.

Access to Skilled Workers is the responsibility of all segments of our industry. All trades must be continually introduced to new methods and technology to reduce costs and build infrastructure.

Energy Performance Labels, National Performance Measures need to be developed by our industry. We need to be proactive.

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For information about how your company can become part of the Geothermal Exchange Organization, visit www.geoexchange.org. You can also contact us by phone: (888) 255-4436, or by email: GEO@geoexchange.org. We look forward to your membership in GEO.
Jay Murphy and Peter Shillingford established K & M Shillingford, Inc. (KMS) over thirty years ago. They established Environmental Product Supply (EPS) in 1993 to provide GSHP products and services to other HVAC dealers. Environmental Loop Service (ELS) then followed in 1999 to provide drilling/loop service for KMS and other contractors.

KMS is the oldest geothermal design build mechanical contracting firm in the United States. The company has played a major role in the development of geothermal technology, applications, marketing, sales, education and training for the industry. KMS has a national reputation for being the innovators of several designs and procedures that are used in the industry today.

KMS was the first to utilize high-density polyethylene pipe (HDPE) for the earth coupled geothermal industry. They installed the first HDPE U-bend with HDPE pipe. KMS installed the first “matched pumping” system utilizing an individual pump for each geothermal heat pump with no central pump required. They were also the first to design and use the modular approach to match individual pumping capacity needs to an individual heat pump with a pre-made pump module. KMS designed and installed the first successful hybrid system utilizing mechanical cooling capacity in conjunction with a geothermal energy field for high heat rejection application. They were also the first to design and install a district central geothermal energy field with individual metering capabilities at each user location.

KMS has been a leader in providing geothermal energy field leases to customers to overcome the initial first added capital required for geothermal systems. They have several schools and universities paying a monthly fee or metered fee, which is paid for by the energy savings of the geothermal systems.

KMS’s extensive project list encompasses industrial, commercial and residential customers that include military bases, low income HUD projects, airports, universities, high schools, primary schools, commercial buildings, federal buildings, churches, museums, theatres, prisons, industrial facilities, concrete plants, U.S. Post Office buildings, casinos, banks, utility companies, hospitals, retirement homes, health clinics, hotels and a variety of additional system types and applications.

The combined design, construction, and service experience at KMS is second to none in the geothermal industry. Murphy says KMS intends to continue to be a leader in the industry.
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NEW
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GSHP SYSTEM HELPS MONASTERY FOLLOW CONVICTIONS

BY JUSTIN YEARWOOD

Geothermal energy was an answer to the sisters of the Benedictine Women of Madison's prayers. Ground source heat pumps, along with special windows, incorporation of recycled materials and other energy-efficient practices helped the Benedictine Women of Madison achieve the highest rated LEED-New Construction v2.2 building in the entire world with its Holy Wisdom Monastery.

(Photo courtesy Ann Moyer)
Located just outside of Madison, Wisconsin, the property sits on 138 acres, which includes 100 acres of restored prairie. The Holy Wisdom Monastery is a multi-purpose facility including office space, conference rooms, a library, dining rooms, commercial kitchen, and worship and assembly rooms.

Prioress Mary David Walgenbach said that the restoration of prairie was one of the sisters’ major green initiatives prior to the construction of the Monastery’s newest building.

“It is our mission and vision and values to care for the Earth,” Walgenbach said. “When it came time to take down a building that was very energy inefficient and too large we of course wanted to put something up that would again care for the Earth.”

The sisters worked with Wisconsin-based Hoffman LLC to develop sustainable and energy-efficient solutions within the budget. Hoffman Director of Sustainable Resources, Mark Hanson, said the client’s budget was one of his greatest focuses.

“They had a very set budget range that they had to stay within given their financial resources and yet they also wanted something that was also very sustainable, so the challenge was how do we deliver,” Hanson said. “Being that budget was the greatest concern; a record-setting LEED rating was not the initial plan.

“That was not the original goal to set that record, but once we were reasonably close we asked the sisters if we should formally pursue that and make decisions that would be consistent with getting there and they said ‘yes,’” Hanson said. “So then the challenge became the budget because some things within the project were going to cost more: the added insulation and the well field is going to cost more.”
Effectively and efficiently heating the more than 34,000-square-foot facility was the question that led the building committee to review ground source heat pumps.

“Of course cost was always a factor but we have found that we could build this building and match the cost of any building that was not green,” Walgenbach said. “So when we learned about geothermal heating it made a lot of sense after living with an oil and gas furnace for 30 years.”

Neal Smith, retired executive director of the monastery, chaired the building committee. Smith said the committee initially sought to utilize the small lake on the property for a pond loop system.

“The first we studied was using geothermal in conjunction with the lake, but our analysis basically showed us that there was not enough capacity in the lake for our heating and cooling needs,” Smith said. The lake’s capacity was a major obstacle for Hoffman to overcome in the design process.

“The two obstacles were the added first cost of the geothermal system, especially when we determined that we would need a closed loop well field rather than using a pond at the site. The pond depth was not sufficient,” Hanson said. Unable to go through with the open loop system in the small lake, the committee worked toward designing a closed loop system.

“Then we looked at alternatives and what we looked at was the geothermal loop system with the vertical well,” Smith said. “Because of the rock and the other considerations, spurting off horizontally was not a viable option so we went ahead with the vertical wells.”

Hanson said the owners decided the investment in a well field at approximately $160,000 was worth it when they found out utilizing the pond was not a viable option.

Manus Devitt from Sustainable Engineering Group of Madison, Wisconsin, designed the loop field, which was installed by G.O. Loop of Randolph, Wisconsin. A total of 39 boreholes at a depth of 300 feet were drilled for the loop. G.O. Loop also dug three trenches approximately 100 feet long. The loop included 1-inch borehole piping connecting to 5-inch branch pipe.

H&H Industries of Madison, Wisconsin installed a water-to-water heat pump, Multistack MS-30C5, with four modules. The Multistack unit was installed in a maintenance building, which is the converted basement of the property’s former retreat and conference center that was deconstructed. The system uses both forced air and radiant, but radiant is prominent.
“Most areas have in-floor radiant for heating. This operates as a steady base in winter operations,” Hanson said. “Additional heating comes via outside air brought in through ERUs and brought to final temperature by fan coil units.” Hanson said efficient considerations and value trading were keys to maintaining the budget.

“We were very careful with system capacities - especially air handler capacity or excess heat pump capacity. We just tried to bring it right inline with what was needed and not leave extra capacity in the design. Those are what we call value trading that we did with the owner in terms of the managing of a very good cost point,” Hanson said. “We chained the ground source heat pump system with a dedicated ventilation system and with that approach you get very energy efficient performance numbers and that is particularly true when you are in summer air conditioning conditions.”

Window selection of special windows, which were developed in a joint effort between Hoffman LLC and Anderson Corporation to manage glare, was correlated to the value trading initiated to maximize energy efficiency.

“The windows are part of an efficient shell,” Hanson said. “The bet-
ter the shell including windows with good solar heat-gain management, the smaller the HVAC system.”

Completed in September 2009, the building achieved the LEED rating in 2010 after being awarded 63 out of 69 possible points. Hanson said the ground source heat pump was a definite advantage for the project’s LEED rating.

“The other thing that is interesting is that within the LEED rating system, the way it is linked to the ASHRAE code chapter 90.1, in the energy modeling you end up comparing your final design building against some baseline building as prescribed by ASHRAE. Then you calculate what’s the percent energy cost savings against that baseline,” Hanson said.

“Well, it’s interesting when you go to a ground source heat pump system, your baseline building then becomes an electric building and that then gives you a quite favorable energy cost result when you do that comparison under the ASHRAE rules in our climate. When you are up in a Northern cold climate, the way the rules apply are favorable to ground source heat pump systems.
Along with a desire to stay within budget, an environmentally-friendly design was a high priority for the building committee.

(Photo by Fotografix, courtesy of Hoffman LLC.)

in terms of how the percentage energy cost savings plays out.” Although not a goal from the beginning of construction, the impressive rating makes a statement about the overall project.

“Achieving that LEED score was an affirmation of the sisters’ vision and mission by an outside entity,” Smith said. “It wasn’t the goal in itself but it was an affirmation by an international organization that this is the right way to be doing things.” Final construction costs including demolition and site preparation were $7,182,191.

“Geothermal systems are very viable. Total construction cost was $209/sf in-
cluding the geothermal systems and a 20 kW solar generation system,” Hanson said. “That compares very favorably with conventional building cost in the Madison area.”

More important than a LEED rating, the sisters are satisfied by being able to fulfill their mission within budget during construction.

“People say geothermal and all these energy conservation methods are just more expensive,” Walgenbach said. “Well we proved just the opposite, it’s not.”

(6)
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The city of Wyandotte, Mich., a community of 25,900 people south of Detroit, has started the first geothermal utility in the U.S. with the help of a $560,000 Neighborhood Stabilization Grant. The project has grown gradually extending the geothermal utility services to 44 residential installations in the area.
NARROW SPACE IN THE WYANDOTTE NEIGHBORHOODS REQUIRED A VERTICAL LOOP SYSTEM FOR THE HOMES.

(Photo provided by Lilli Hardin)
The city has teamed up with Hardin Geothermal LLC, a private company in Indianapolis, Ind., to design, engineer and conduct the geothermal installations, said Lilli Hardin, the vice president of sales and marketing for Hardin Geothermal.

The 44 homes currently served through the Neighborhood Stabilization Grant financed geothermal utility are foreclosed homes around 1,500 square feet in size, said Melanie McCoy, general manager of Wyandotte Municipal Services. The homes require vertical wells approximately 400 feet deep and require one and a half wells per home. The ground loops contain 5-inch plastic pipe in a closed loop system.

The project’s first phase started with two homes, which were rehabilitated and retrofitted for geothermal. Independent contractors went through a bidding process to receive the contract for the original two homes. The contract was awarded to Cappy Heating & Air Conditioning Inc. of Livonia, Mich.

Jeff Caplan, owner of Cappy Heating & Air Conditioning Inc., said his company was responsible for the piping from the well into the home and out again, installation of the geothermal units in the home and the supplying of all the necessary ductwork.

“The most difficult part of the project was the start up portion with the first two homes,” Caplan said. “No one had done a similar project before.”

Caplan equipped the original two homes with the Envision series heat pump from WaterFurnace International. The units use R-410A refrigerant and include features like coated air coils and a microprocessor control sequence component, according to the WaterFurnace website.

Caplan, a WaterFurnace dealer, was turned on to the Wyandotte project on a reference from his WaterFurnace territory manager. Caplan then pursued the project and went through the public bidding process because of his support of geothermal technology.

“The reason I wanted to be a part of this is because I’m passionate about ground source heat pumps,” Caplan said. “This is a unique project too, because this is one of the first times a city has created a geothermal utility.”

Including the first two homes, Caplan has completed installations in six homes in the area. Caplan is one of four preferred HVAC contractors the city recommends to Wyandotte homeowners pursuing geothermal, McCoy said.

“He was very knowledgeable on the geothermal and he helped get us up to speed on the installations,” McCoy said.

The Wyandotte Municipal Services has installed geothermal wells for various sectors of the public including new residential installations, residential retrofit installations, commercial installations and multifamily complex developments. One installation included a retrofit installation in the American Legion building in Wyandotte. There are several commercial developments in the engineering process that plan to use geothermal. The effort to broaden the
amount of customers served by the Wyandotte Municipal Services has included efforts to educate everyone in the community about the benefits of geothermal.

“Any new concept requires extensive legal work and affirmation, especially when that creation involves a marriage between the public and private sectors,” Hardin said. “Advancing due diligence requirements and merging innovative ideas with established processes takes significant time, even amid consensus support.”

Many of the current geothermal utility customers are new residential installations. The customer is recommended to stay in the home for several years in order to recoup the cost because the geothermal utility services are not a two year pay back, but closer to a seven year pay back, McCoy said. The municipal services have been doing energy efficiency audits for their customers to show the savings.

“Even people that have to get a new furnace and air conditioner, it is still a lot more expensive to put in geothermal,” McCoy said. “You have to get somebody that is in theory planning on staying in their home. We show it does save them $500 a year.”

The startup cost is around $25,000 for the well and the geothermal unit in the smaller homes, McCoy said. Homeowners also can take advantage of the 30 percent tax credit from the government through 2016 to offset the cost. Wyandotte also received the Energy Efficiency Conservation Block Grant for a credit on units for $1000 per ton, up to 3 tons.

“We are offering rebates and incentives and trying to explain the cost savings and the energy savings,” McCoy said. “We will take over the well side to make it easier for the customer.”

Wyandotte Municipal Services partners with Hardin Geothermal to create the well field and assist customers in connecting. Hardin Geothermal uses HG4 Vertical Heat Exchanger Technology, which reduces the overall geowell requirements by 50 to 60 percent, Hardin said. Wyandotte Municipal Services covers the cost of the well if customers pay a monthly bill. Customers pay a monthly fee of $26 per ton for the connection to the well and the monthly service fee. The bill is similar to an electricity or water bill, Caplan says.
Wyandotte Municipal Services also allows customers to install their own loop field through a contract with the municipal services and the municipal services will maintain the field for $11 per ton each month. The homeowner is always responsible for the ground source heat pump unit installation and maintenance in their home.

“Our long term goal is that we can drive the installed cost down so that we can make it more economical for customers,” McCoy said. “We also hope to be able to develop enough of a customer base so that we could have an integrated system here.”

The geothermal utility also has provided economic benefits to the city. One benefit the city of Wyandotte has seen is job creation and development in the geothermal utility. Another benefit of the geothermal utility to the city’s municipal services, McCoy said, is to help improve the operation of the electric system.

“For us as an electric supplier, we have high electric demands in the winter and summer,” McCoy said. “It will help us to bring those peaks down because a geothermal operates a lot more consistently. When you have the really high electric loads in the summer—that is when it is really expensive and really hard to get the power for your system. It has offset those peaks.”

The geothermal utility has overcome many challenges including drilling in fractured limestone, as well as educating the community to the new concept. The utility was able to successfully provide stable temperatures to customers through the first winter in Michigan. The project’s next step is additional marketing, McCoy said.

“We have had some challenges along the way,” McCoy said. “It is most rewarding when you are seeing the customers speaking highly of it and other people are looking to put it in and planning for it in the future.”

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Chester, Pennsylvania's Wesley House Homeless Shelter is now one of the only facilities of its kind in the country to boast of true energy efficiency and genuine cost-saving comfort from a new ground-source heat pump installation.

The Wesley House Homeless Shelter, located at 701 Madison Street in Chester, just outside of Philadelphia, serves families and single women. Community Action Agency of Delaware County, Inc. (CAADC), operates Wesley House and several other shelters in Delaware County.

Wesley House Community Corporation, Inc. (WHCC, Inc.) was created in August of 1991 as an affiliate corporation of CAADC. At that time, WHCC acquired the Wesley House, a former United Methodist Church that had been converted to a mass emergency shelter facility in 1986 by United Methodist Ministries. WHCC, in collaboration with CAADC, completed numerous rehabilitation and programmatic upgrades to the facility.

CAADC Chief Executive Officer, Edward Coleman can brag that the shelter is the first in the state of Pennsylvania to...
go to a geothermal system for heating and cooling. Coleman says that as shelter operating expenses continue to go up and funding sources are drawing back, finding ways to reduce costs and operate efficiently is vital to the mission of the shelter.

“We are always looking for innovative ways to operate our shelters in a more cost efficient way. This opportunity allows us to do that while also being environmentally friendly,” Coleman says.

Other benefits that made the geothermal attractive for CAADC, in addition to the fact that they can now be considered “green,” include the lower maintenance and a ready supply of hot water for laundry, cooking and showers. Being able to save on energy costs will allow funds to be put toward services the shelter offers.

“We are installing a geothermal heat pump system, which uses the Earth’s thermal properties in conjunction with electricity, to provide heating and cooling at the Wesley House,” said John (Jack) P. DiEnna, Jr., CAADC Executive Board Member. “Geothermal heat pumps do not need the sun to shine or the wind to blow.” DiEnna says. “And it works 24/7, 365 days a year.” DiEnna also points out that Pennsylvania Electric and Gas Company’s (PECO) Energy program was vital in supporting the change for the shelter’s heat and air systems. DiEnna, long a supporter of geothermal, is executive director of the Geothermal National and International Initiative and Marketing and Membership Committee Chairman for IGSHPA.

Expected to be up and running this fall, it is anticipated that the new geothermal heat pump system will save Wesley

The Wesley House Homeless Shelter in Chester, Pennsylvania, was formerly a United Methodist Church.

(Photo courtesy Deborah M. Lamborn, CAADC, Inc.)
House somewhere around 40 percent in energy costs over the old system it is replacing.

CAADC as the operator of the shelter is particularly pleased to be using the new environmentally friendly geothermal system that will change their dependence on fossil fuel for space conditioning. The shelter’s current operating budget has allowed for $51,000 in utility costs, of which they now have hope of saving more than $20,000 annually with the new system. Funding for the geothermal retrofit for Wesley House came through an Emergency Shelter Grant from the Pennsylvania Department of Community and Economic Development as well as incentive funds from PECO.

The Wesley House, a 70-bed facility serving families and individuals, in addition to living quarters—provides case management, employment assistance, childcare, therapeutic recreational therapy assessment and referral, drug and alcohol counseling, clothing and food assis-

John Rainey and Karl King, both of Powell Well Drilling, join Ed Smith of S & S Heating and Air Conditioning, on the roof of the Wesley shelter to look at the new retro-fitted units.

(Photo courtesy Neal Babcock, Alderson Engineering, Inc.)
Over the years, the Wesley House Shelter has seen extensive rehabilitation. The facility closed in late 2003 for major renovations. The first two phases, which included the first and second floors, were completed and the shelter re-opened in July of 2005. The $1.3 million dollar renovations improved the quality of life for homeless families, increasing the safety and health of the shelter environment. The third phase, renovation of the annex to add more shelter space for families, was completed in August of 2007.

Neal Babcock with Alderson Engineering was brought on board with Wesley to do contract plans for the change over to geothermal. “Normally when you are making conversion to geothermal you would gut and start over- put new equipment in existing buildings. Here, we had to use everything we possibly could,” Babcock said. His firm has extensive commercial geothermal experience. Not far into the project, Babcock said, his firm took a different tact.

Ed Smith with S & S Heat and Air answered questions about the project from the site. “I am sitting on the roof of the build-

John Rainey, with Powell Drilling & Services Inc., finished drilling for the project in late August.

(Photo courtesy Neal Babcock, Alderson Engineering, Inc.)
ing right now,” Smith said. As his work wraps up, Smith reflected on the way it all unfolded. He is convinced that efforts by industry professionals working together saved the project for the Wesley House and allowed the shelter to retrofit a geothermal system that will perform to their needs, keep residents comfortable and save money, all at the same time.

Smith said several things make the Wesley House project different. When the project was originally put out to bid, bids came back ranging from $330,000 to $340,000 and included all new infrastructure. Smith says the bids came in higher than CAADC had budgeted.

The job went back out for proposals to the industry with a goal of saving the shelter $150,000. Smith says that at that point a number of industry specialists decided to look at the project through a value engineering approach. A recent retrofit of the building had included, what Smith says was, relatively high-grade equipment.

“We brought to the table a plan to keep the existing infrastructure,” Smith said. Because of the high quality of equipment from the upgrade done less than three years earlier, Smith went to work on a design that would allow keeping it. “I knew what we could do,” he said. Smith admits he spent his vacation working it all out in his head. “When I got back, I drew up the plan. It all had to be reviewed,” Smith said.

“The initial design was to get rid of the gas furnaces and simply use electric for backup heat,” Smith said. His change in design kept the 93 percent efficient gas furnace as a supplemental system. Several modifications, such as a thermostat designed for use with geothermal as the primary and fossil fuel for supplemental, added to the efficiency of the new system. “Little things like that can make or break these systems,” Smith adds.

“After that was all brought to the table, then the Wesley group, including DiEnna, had the engineering firm Alderson Engineering, who originally designed the new system, review everyone’s scope of work. They also reviewed the engineering itself to see if it was sound and whether it would deliver the promises as a result,” Smith said. Smith’s plan was submitted for consultation with Neal Babcock at Alderson Engineering.

“They had a limited amount of funding and if they weren’t able to limit the scope of the project to work within it—there was no project and the shelter would lose out on a great opportunity to have geothermal,” Babcock said.
“We took an advisory role for the remaining scope and for what was actually being constructed. We began acting as the owner’s representative to review installation. We did kind of switch roles part way through, and began administering a contractor’s scheme,” Babcock said. “We just changed the approach that we needed to take and how we interacted with the client and the contractors—to keep the work on schedule and on budget and get the work done in a satisfactory manner for the shelter and for the owner.”

Smith also consulted with Fred Umble at Creative Energy during his planning. Umble is an HVAC supplier with more than 20 years experience as an installer and was invaluable to the project, Smith said. At Umble’s request, ClimateMaster custom built the outdoor 3-phase split system units that allowed the shelter to largely leave their infrastructure intact and forego major rewiring for installation.

Umble said the original plan was to install horizontal packaged geothermal units in the building, and connect them to a central piping loop. “The prices were all over their budget, so it looked like geothermal would not be an option for them,” Umble said.

“This job is somewhat unique because S & S was able to lower the cost of installation by locating ClimateMaster’s outdoor split-system condensers where the original air conditioning condensing units were so that the electrical work needed would be minimal,” Umble says. “The ground loop piping never enters the building, which also lowered the installed cost. The ground loop flushing and purging was done outside at ground level, and each unit has it’s own circulator which eliminated the need for a pump room inside the building. The units are still connected to a single ground loop system that gives any unit access to the entire ground loop capacity.”

John Rainey, with Powell Drilling & Services Inc., says that the drilling for the dozen 400-foot boreholes the system required was typical. Drilling was finished the end of August, he said.

“I had some reservations before we started the job, because of how close it was to the Delaware River, but it all went well,” Rainey said. “They had a vacant lot adjacent to the building where they had torn down three houses. We had to deal with a lot of red brick and debris. They pretty much collapsed the houses into the basements,” Rainey said. “But other than that, nothing was extremely out of the ordinary.”

The loop field uses 1 1/4-inch piping ran to 2-inch headers, Rainey says. Three sets of headers manifold to 3-inch pipe to go into the building. Rainey went back to the site to help finish work on butt fusion for running pipe to the outdoor-rooftop units.

Creative thinking and extra efforts of those involved in the change over to geothermal for the Wesley Homeless Shelter provide an outstanding example of how versatile equipment and professionals are becoming in the geothermal industry.
Ed Smith, of S & S Heating and Air Conditioning, verifies the readings on a pressure test of the HDPE geothermal system piping.

(Photo courtesy Neal Babcock, Alderson Engineering, Inc.)
They came from Japan. They came from the United Kingdom. They came from Stillwater, Oklahoma.

Around 680 people including geothermal community leaders, manufacturers, drillers, contractors, distributors, students and interested citizens came to Tulsa, Oklahoma for the International Ground Source Heat Pump Association’s Technical Conference and Expo 2011.

Pre-conference training began October 3 with accredited driller and installer workshops; the conference and expo was held October 5 and 6. For IGSHPA Executive Director Dr. Jim Bose attending the conference has been a part of his yearly routine for the past 24 years, but he said this year’s conference was different.
The four day event included workshops, cutting edge sessions on important issues affecting the ground source heat pump industry, a new product showcase, networking opportunities and an exhibit hall.

Prior to the arrival of most attendees, more than 60 people participated in the accredited workshops.

“The workshops went very well. We had good participation, a lot of people came and it all worked out,” Distance Learning Coordinator Gerald McClain said. “They received presentations from experts with good background experience so they were able to learn from those who have worked out in the field.”

The installer workshop not only focused on installation practices such as residential and light commercial design, layout and trenching, but strategies to keep business competitive as well. Ground source heat pump system design and layout basics, thermal conductivity, drilling processes, containment procedures, grouting procedures, pipe joining techniques, and project bidding and partnerships were covered in the driller workshop. Accreditations were awarded upon participants’ successful completion of the specific workshop and ending exam. While exact numbers of accreditations awarded are still not available, McClain said he was satisfied by the results.

“It was very high because of the excellent instructors we had,” McClain said. “Some of the best courses that we have are at the conference, because we bring in experts to teach all the different subject matters, not just one instructor.”

Sessions were led by representatives from multiple segments of the geothermal community. Ezepek said sessions went beyond just geothermal basics to better suit attendees’ growing businesses.

“I think the topics that were discussed this year were topics that were on everybody’s mind. A lot of the participants were already in the business for an extended period of time, so things we covered were important to them,” Ezepek said. “Whether it was legislature or whether it was new products coming out, it hit home for them.”

When not sitting in sessions, conference attendees were invited to explore the expo floor in the exhibit hall, which was also open to the public. More than 75 companies had set up booths or displays. With products on display and representatives standing by, those walking around had plenty of opportunities to find out the latest information about industry leading companies and products.

“This was the best ever. The quality of the speakers, the exhibits, the enthusiasm of the crowd, the comments they made going from session to session were all great,” Dr. Bose said. “They have all been good but this one seemed to have a broader coverage of issues, and we had Department of Energy and other international groups here seeking knowledge about the industry and its capacity to produce. “

Conference and Membership Assistant or Exhibit hall contact Gail Ezepek said the topic selection for this year’s conference was a big reason for its success.

“Participants usually say they have a really good time at the conference and appreciate the context of it, but this year the compliments I am getting is they liked the sessions that we had and that they learned a lot,” Ezepek said.

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“It’s a valuable part of the event because all of the people with expertise in geothermal are in the exhibit hall.
to answer questions and that’s exactly what they want to do,” Ezepek said. “Everything from grout information to drill rigs to contractors is all there.”

With a total of nearly 700 people, IGSHA experienced a huge growth from the last conference and expo held in Oklahoma: Oklahoma City in 2007 with 350 people.

Conference and Membership Coordinator Shelly Fitzpatrick said conference planning begins 18 months prior and in accordance with that timetable, planning for the 2012 event has already begun. The process includes site visits of possible locations and committee meetings to determine session presenters. Professionals interested in being a presenter should contact Fitzpatrick at shelly.fitzpatrick@okstate.edu for more information about the selection process.

Along with planning for the 2012 conference, exhibitor registration has begun as well. Ezepek said 41 out of the 82 available spots have already been filled for next year’s exhibit hall. Interested companies can contact Ezepek through email, gail.ezepek@okstate.edu, for more information about expo participation.

Indianapolis, Indiana has been selected as the host city for the 2012 conference and expo. Fitzpatrick said the selection was based upon several factors.

“There is a lot of geothermal development in that area, several of the industry’s large manufacturers are headquartered in that region and the city itself offers additional entertainment for participants at the conference,” Fitzpatrick said. “It is a combination of those reasons that Indianapolis ended up as our top choice and an interesting note, not
necessarily the reason we chose it, but it was the site of our first conference.

Indianapolis will be Dr. Bose 25th conference and he said the city is a perfect fit for the landmark year.

“The Midwest is where the industry really took off – Indiana, Illinois and Ohio,” Dr. Bose said. “So it’s an important area to the development of the technology.”
IGSHPA has been growing a lot in the past few years. While the country is in a recession, the ground source heat pump (GSHP) industry has been flourishing. And while the industry is growing in both business and innovation everyday, IGSHPA is moving right along with it. As of October 21st the association has moved into a brand new state-of-the-art facility. And with a fresh transition comes some fresh ideas. Because of the enormous interest in GSHP technology, IGSHPA has come up with some new strategies to further the knowledge and know-how of today’s GSHP professionals.
Included in this facility is the working prototype of the newly conceived regional training centers. These classrooms are designed for the best possible learning experience, including hands on instruction from today’s top GSHP professionals. The facility houses both a classroom as well as a training area featuring working examples of equipment found on the job. Whether it’s flushing and purging, pipe fusion, or simply taking a look at a heat pump, students will find it in the training room. Even the building itself is a working example. IGSHPA’s headquarters and training center utilizes a GSHP. The training room has an unfinished ceiling allowing for a view of the duct work.

For more information on training, including a schedule of upcoming classes, please visit: www.igshpatraining.com
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Enertech, the manufacturer of GeoComfort®, Hydron Module®, and TETCO® brand geothermal heat pumps, now produces our 2 through 4 ton models of the XT Multi-Positional Vertical Series with a standard **all-aluminum micro-channel air coil**. The 5 and 6 ton models will follow in Spring 2012 with the rest of our products transitioning over the next 12 to 18 months. This new and exciting feature is one more example of how Enertech strives for better product solutions for our customers.

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Visit [www.enertechgeo.com/tradeshows](http://www.enertechgeo.com/tradeshows) for a listing of upcoming shows or email us at info@enertechgeo.com.
We often discuss Geothermal Heat Pump Systems in terms like “green”, “renewable”, and “sustainable.” But, while “green” and “renewable” are easily defined and understood, sustainable has had no clear example – until now.

In the first few years of the 21st century, David Erickson and his family had a beautiful water front home on Santa Rosa Sound across from Pensacola Beach, Florida.

This house was served by a split system geothermal heat pump system with a ground heat exchanger. Then, in 2005 Hurricane Ivan paid a visit. The house was completely demolished and swept away by the hurricane’s storm surge, EXCEPT for the geothermal heat pump system.

As shown in Picture 2, David returned to find the house gone, but the ground heat exchanger was still connected to the pumping module and then on to the split system unit. Obviously, the storm had destroyed the house (note the bare slab behind David), the pump module and the split system unit, but the ground heat exchanger was undamaged. David cut the lines, sealed the ground heat exchanger pipe ends, and went about cleaning up the wreckage and rebuilding.

David’s new home, shown in Picture 3, utilizes the original ground heat exchanger to serve the new geothermal heat pump system – a pretty good example of the sustainability of the ground heat exchanger – especially in areas where salt laden air can destroy outdoor space conditioning equipment and/or the ravages of Mother Nature can destroy everything! Definitely sustainable!

Finally, I would like to thank Keith Swilley of Gulf Power (a Southern Company) for telling me David’s story and providing the pictures, and especially David Erickson (also of the Southern Company) for giving me more details and allowing me to tell his geothermal heat pump system sustainability story.

Mr. Rawlings has more than 30 years experience in the geothermal industry. He is a Certified GeoExchange Designer (CGD) and an IGSHPA Accredited Installer and Trainer.

If you have a question about geothermal installation, design or troubleshooting, send it to Phil Rawlings in care of Geo Outlook, Oklahoma State University, 1201 S Innovation Way, Stillwater, OK 74074.
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