



Geothermal: From the Ground Up

2012 Iowa Geothermal Conference

March 27-29, 2012

Workshop Descriptions

Tuesday, March 27, 2012

Concurrent Session 1 : 9:00 am- 10:30 am

1A: Well Contractor Certification Training

Steve Jurshak, Jim Bear & Russ Tell

This training workshop is for individuals interested in becoming Certified Well Contractors in the State of Iowa. Major areas covered will include Iowa One Call, permitting, high capacity well permits, chlorination, well interference compensation costs, and grouting. Other topics will be costs, residential and commercial wells, problem jobs, and liability issues. Regulations on horizontal pipe rules and managing your permitting authority will also be discussed.

*The required IDNR test will be given at the end of this class. **A separate application and payment for the test MUST be submitted to the IA Dept. of Natural Resources by February 27, 2012. Contact IDNR directly at 515.725.0282.**

*REGISTRATIONS MAY NOT BE ACCEPTED AFTER FEBRUARY 27th because of the lead time IDNR needs to prepare and send testing material!

1B: Google: Get a Free Website (repeated at 3B)

Google Team Iowa

97% of consumers search online for local products and services. If you don't have a website, you're virtually invisible to consumers looking online for businesses like yours. A website helps customers find you—whether they're down the street, across Iowa, or around the world. Once they've found you, your website shows them what sets you apart from other businesses. In this session, you will get the tools necessary to create a free domain name and website for your business in less than 90 minutes.

1C: Working With Your Pants Down-How to Pull Them Up and Avoid Catastrophic Risks

Stan Luhr

This session provides an overview of the litigation risks and legal culture affecting home builders and contractors, and explains some common construction risks affecting builders and energy efficiency providers. The worksheet portion of this session includes introduction into Quality tools including Ishikawa Diagrams to solve cause and effect issues, with examples of actual construction issues that have been solved to save builders millions of dollars.

1D: Documenting Discipline: What You Need to Do to Stay Out of Court

Jack Lipovac, Matt Brick

The purpose of this presentation is to increase awareness of the mistakes which raise the risk of employment-related claims and to recognize the duties of management that typically result in costly litigation. There will be a discussion about who the audience of documentation really is and suggestions will be provided for better discipline-related record keeping.

Concurrent Session 2: 10:45 am – 12:15 pm

2A: Well Contractor Certification Training

Steve Jurshak, Jim Bear & Russ Tell

*See description and instructions under Session 1A.

2B: Google: Running Your Business Online

Google Team Iowa

In this session, find out how to take advantage of online tools to run and promote your business. You will learn about Google Analytics, Google Webmaster, the Plus 1 button, and many more free Google products targeted for small businesses. You will also customize and verify your Google Place Page.

2C: HVAC Risks & Remedies

Stan Luhr

The most common construction issues facing mechanical contractors and energy retrofit installers will be explored, including dozens of real litigation issues that have become nightmares. This issue helps builders and mechanical contractors focus on specific trends affecting the industry and offers solutions to avoid these costly mistakes.

2D: Employment Law Update

Jack Lipovac, Matt Brick

Employment law is a moving target and even accidental missteps by an employer often result in costly litigation. This session will cover important recent developments in employment law; an update on recent Supreme Court decisions; and a recent decision on retaliation.

Concurrent Session 3: 1:15 pm – 2:45 pm

3A: Well Contractor Certification Training

Steve Jurshak, Jim Bear & Russ Tell

*See description and instructions under [Session 1A](#).

3B: Google: Get a Free Website (repeated at 1B)

Google Team Iowa

97% of consumers search online for local products and services. If you don't have a website, you're virtually invisible to consumers looking online for businesses like yours. A website helps customers find you—whether they're down the street, across Iowa, or around the world. Once they've found you, your website shows them what sets you apart from other businesses. In this session, you will get the tools necessary to create a free domain name and website for your business in less than 90 minutes.

3C: Reduce, Simplify, Streamline: How the Most Successful Companies Achieve Greatness & Quality

Stan Luhr

This lecture provides an introduction into the Culture for Quality in the construction industry, and compares quality metrics found in the most successful world-class industries. Attendees will have an understanding of "muda" or waste, and learn how to root out all waste and eliminate everything that does not add value to their final product. The Change Process Action Plan worksheets will be used by attendees to address real construction problems and walk them through the process of identifying, planning and eliminating highest risks in their construction operations. This is an entry-level class suited to any builder or contractor.

3D: Facilitation Skills for Team and Project Leaders

Brenda Clark-Hamilton

Even the most skilled and experienced managers have times when they dread running the upcoming team or project meeting. The diversity of personalities, roles, personal agendas, and communication styles often make meeting facilitation a genuine challenge. This engaging session will provide participants with practical, take-home strategies to increase their skills and confidence in facilitating productive, upbeat, and efficient meetings. Topics to be covered include soliciting and managing robust and civil idea exchange, preventing and/or addressing common hindrances such as side-bar conversations, and critical pre- and post-meeting work to ensure seamless transition between meetings.

Concurrent Session 4: 3:15 pm – 4:45 pm

4A: Well Contractor Certification Training

Steve Jurshak, Jim Bear & Russ Tell

*See description and instructions under Session 1A.

4B: Google: Running Your Business Online

Google Team Iowa

In this session, find out how to take advantage of online tools to run and promote your business. You will learn about Google Analytics, Google Webmaster, the Plus 1 button, and many more free Google products targeted for small businesses. You will also customize and verify your Google Place Page.

4C: Panel Discussion: Emerging Trends Affecting our Industry; How to Survive in 2012

Stan Luhr (Industry Expert), Chaden Halfhil (Commercial Builder), Residential Builder, Home Owner, Contractor

Listen to a panel of experts from various areas of our industry discuss emerging trends and practices. Each panel member will speak on a topic then open the discussion for questions and answers.

4D: Respecting and Appreciating Generational Differences in the Workplace

Brenda Clark-Hamilton

Traditionalists, Baby Boomers, Gen X'ers, Generation Y... We've all heard the terms, and chances are that your organization contains a sampling of each of these generations working side by side. This engaging, interactive session is designed to increase understanding of the different points of view that each generation might bring to a workplace, based upon their shared life experiences. Participants will leave armed with practical, take-home strategies for respecting generational differences and maximizing the benefits of working on, or leading, a multi-generational work team.

Wednesday, March 28, 2012

Concurrent Session 5: 8:45 am- 10:45 am

5A: Mechanical Code Update

Tom Knight

This course is a demonstration in navigating the 2009 IMC using chapter 3 as a benchmark while describing this portion of the IMC known as: Chapter 3 General regulations.

5B: The Safe Use of Torches

Cory Paeper

The speaker will cover many of the safety aspects of handling, transporting and storing commonly used oxygen and Acetylene torches as well as how to set the pressures for brazing and the safe use of nitrogen while brazing.

5C: Basic Sizing of Plumbing & Gas Distribution

Jack Cooper

The speaker will review approved methods of Sizing: Water, Drainage & Venting, and Gas Line Systems. They will work through example diagrams for both Public and Private Use Occupancies and detail common errors and how to avoid them.

5D: Residential Air Flow Dynamics and Proper Duct Sizing (repeated at 9C)

Jim Mayer

This course will focus on determining CFM needed based on load calculations and proposed equipment, duct sizing theory, static pressure calculations and examples, review supply and return duct systems and filter size calculations. Participants will receive complete instruction and review of the duct sizing calculators for metal and flex duct, duct design engineering, gages, and good installation practices. Each attendee will receive a manual and duct sizing calculator.

5E: Feasible Energy Efficiency (repeated at 7E)

Doug Rye

This two hour presentation will provide information on common sense energy efficiency from an industry expert. This efficiency could allow for smaller geothermal sizes which makes it a more feasible and cost-effective project for customers. Mr. Rye will also cover the feasibility of renewable energy sources.

Concurrent Session 6: 11:15 am – 12:45 pm

6A: SAVE Program

Tim Hanes

This session will cover details relating to the SAVE program.

6B: GHEX Rules & How It Affects Geothermal Drillers

Russ Tell

Ground Heat Exchange (GHEX) or more commonly referred to as “geothermal heating and cooling” as been steadily growing in popularity both in our state and our nation. A push for nationwide industry standards for construction and operation of GHEX based systems prompted Iowa GHEX stakeholders and the Iowa Department of Natural Resources to draft new rules to improve the state construction standards for GHEX loop boreholes and define a set of “GHEX only” construction rules. These new rules are currently moving forward to the Environmental Protection Commission and will soon part of statewide public hearings. Chapter 48, if adopted, will establish new standards for GHEX installations including heat exchanger loop boreholes, piping and fittings, fusion, pipe bedding, heat transfer fluids, and a number of additional GHEX related items.

6C: Sizing Geothermal Systems

Richard Hiles

Customer satisfaction with their geothermal system depends on the interplay of numerous pieces of equipment and calculations. There are no quick shortcuts available to getting customer satisfaction. Richard Hiles will take workshop participants step by step through the process of getting a geothermal system properly designed to meet each individual customer’s situation.

A – Building Load Calculations, B – Reducing the load via better building methods, C – Selecting Ground Source Heat Pump Capacity, D – Design Ground Loop system and capacity, E – Verify overall system design, balance point and operating costs, F – Confirm cooling mode dehumidification control.

6D: Staying "Safe" and Surviving an OSHA Inspection

Ken Arp

Why OSHA is here and procedures to follow now. Ways of working safely without reading the OSHA book. Identifying typical OSHA hazards found on the job site.

6E: How Contract Law Can Protect You

Erin Herbold-Swalwell

How good Sales Contract Law can give good customer relations.

Keynote Address: 1:00 pm – 1:30 pm

Geo from Beginning On: From the King of Caulk and Talk

Doug Rye

Doug Rye, the “King of Caulk and Talk” will engage you with an enlightening history of Geothermal over the past 30 years to the present.

Concurrent Session 7: 2:30 pm – 4:30 pm

7A: HVAC/R and Hydronics Controls

Tom Knight

This course will cover basic controls, common accessory controls, control function and purpose in the system as well as troubleshooting for air condition circuitry, basic furnace circuitry, basic refrigeration circuitry, basic hydronic controls and more uncommon complicated controls.

7B: What's Practical for me in the UPC? (repeated at 8B)

Cory Paeper

This course will cover the scopes and administrations of each chapter of the UPC to include general regulations, water heaters and vents.

7C: The Basic Joining Techniques in Plumbing and Mechanical Systems

Jack Cooper

This session will cover the standards and techniques to properly join various piping materials, new approved joining systems and limited hands-on information and demonstrations.

7D: System Performance Testing

Timothy Hanes

This course touches briefly on the same subjects covered in my full day class that is already approved for HVAC CEUs by the Iowa Department of Public Health. This will be a 2 hour presentation that will focus on a very high level of performance testing. I will briefly cover the topics from the one day class such as an introduction to performance testing of HVAC systems. It will be covering static pressure measurement, fan tables, diagnostics, measuring equipment, and system performance. It is in line with the SAVE program that is now being implemented by MidAmerican Energy, Alliant, and Black Hills.

7E: Feasible Energy Efficiency (repeated at 5E)

Doug Rye

This two hour presentation will provide information on common sense energy efficiency from an industry expert. This efficiency could allow for smaller geothermal sizes which makes it a more feasible and cost-effective project for customers. Mr. Rye will also cover the feasibility of renewable energy sources.

Concurrent Session 8: 7:45 am – 9:45 am

8A: Going Green: Plumbing & Mechanical Systems, Part 1 (continued to 9A)

Jack Cooper

Energy, energy analysis, efficiency rating systems, conventional and alternative space and water heating, cooling, dehumidification, methods of offsetting heating and cooling requirements, and energy conservation measures will be the focus of the seminar.

8B: What's Practical for me in the UPC? (repeated at 7B)

Cory Paeper

This course will cover the scopes and administrations of each chapter of the UPC to include general regulations, water heaters and vents.

8C: Mechanical Code

Tom Knight

This course is a demonstration in navigating the 2009 IMC using chapter 3 as a benchmark while describing this portion of the IMC known as: Chapter 3 General regulations.

8D: Water Heaters – Today's Energy Efficient Choices

Curtis Klaassen, P.E.

Water heating is the second largest use of energy for Midwest homes after space heating. Recently there have been many technical advances and product improvements in water heating equipment – along with changes in energy codes, standards and Energy Star program requirements. Stay in the Hot Water with an update on the latest developments for energy efficient water heaters. This intensive course presents the technology, pros/cons and applications of geothermal system desuperheaters; water and air source heat pump water heaters; high efficiency storage water heaters; and tankless water heaters.

8E: Geothermal Heat Pump 101 *(continued to 9E)*

Lynn Decious

What are the principles that make geothermal work? How can you heat with 50 degree ground temperature? Who invented geothermal heating? These are just some of the questions that will be addressed during this session. This class is to be nonspecific to one geothermal unit manufacture. The class content will be specifically designed for the beginner. The course will help technicians understand the basic principles of refrigeration as it applies to geothermal equipment. Participants will become familiar with specific geothermal components and their purpose. Learn how to read ARI standards for your type of system. Learn how to explain how 30 -50 degrees ground temperature can heat a home to 72 degrees.

Concurrent Session 9: 10:00 am – 12:00 pm

9A: Going Green: Plumbing & Mechanical Systems, Part 2 *(continued from 8A)*

Jack Cooper

Energy, energy analysis, efficiency rating systems, conventional and alternative space and water heating, cooling, dehumidification, methods of offsetting heating and cooling requirements, and energy conservation measures will be the focus of the seminar

9B: Safe Refrigerant Handling Techniques

Cory Paeper

This course covers many of the safety issues encountered while using modern refrigerants and refrigerants of tomorrow. He will also delve into charging precautions as well as MSDS Sheets and precautions for transportation.

9C: Residential Air Flow Dynamics and Proper Duct Sizing *(repeated at 5D)*

Jim Mayer

This course will focus on determining CFM needed based on load calculations and proposed equipment, duct sizing theory, static pressure calculations and examples, review supply and return duct systems and filter size calculations. Participants will receive complete instruction and review of the duct sizing calculators for metal and flex duct, duct design engineering, gages, and good installation practices. Each attendee will receive a manual and duct sizing calculator.

9D: Geothermal Systems Update

Curtis Klaassen, P.E.

Geothermal Heat Pump Systems are one of the most active areas in energy efficient building systems design today. The Geothermal Systems Update course identifies the current market drivers and efficiency attributes that make geothermal heat pumps the system of choice for many building owners. New applications of geothermal technology and alternate, non-conventional system types are explained. The technology update addresses geothermal system design and installation issues such as pumping, piping, heat transfer fluids; energy performance ratings (COP and EER); soil thermal properties; managing installed system costs and life cycle cost considerations.

9E: Geothermal Heat Pump 102 *(continued from 8E)*

Lynn Decious

This class content is designed to follow the Geothermal Heat Pump 101 class. This course will help technicians be able to properly and efficiently diagnose problems with ground source heat pumps. This course will help identify where the issues may be within the system and what steps to take to correct the problem. Tips will be provided on how to identify what the problem might be if particular fault is shown on the heat pump system. He will teach how to tell if the geothermal unit is working properly and performing up to the manufacture specifications, as well as, show how to look at the refrigerant charge and determine if it is properly charged.