



The Razorback Report

Arkansas Chapter #062, Region VIII

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

www.arkansasashrae.org

Volume XVI, Issue IV, January 2005

The President's Message

By John Carter, P.E., Arkansas ASHRAE Chapter President

Happy New Year! I hope you had a wonderful Christmas holiday and are expecting big things this year! You know, the beginning of the year is a great time to reflect on the past year and make plans and goals for this upcoming year. For some people, that can be tough. In particular if that reflection is a person who is dearly missed or a challenge that is not yet overcome. Please know that there is hope. I encourage each one of you to take the time to do that over the next two weeks to set plans for the upcoming year. I want to continue to remind you to keep ASHRAE in your plans. How can you give back to your industry? Have you ever served on a committee? Have you ever volunteered to help a committee chair? Did you know that voluntarily giving a portion of your time and energy without regard for the return is healthy for you? So, **schedule one of your goals as "Service to your industry through ASHRAE" over this next year.** Start by calling one of the committee chairs listed on the last page of the newsletter to ask how you can help.

The December meetings were a tremendous success. We had 100 people in attendance at both meetings with the Northwest section having 40 people there. Folks, the NW section meeting is "hoppin'" to say the least. That section is really growing and has a great atmosphere. I encourage anyone from the central section to attend if you have never visited one of the meetings. Dan Kelly gave us some great parameters in selecting cooling towers for the most optimal conditions. Physical layout, energy, maintenance, sound are all factors that need to be prioritized to select the right tower or fluid cooler. Hugh Crowther then gave one of the best talks I have ever heard on central plant optimization. He expounded on a 04' ASHRAE Journal article in which he encouraged the audience to consider all aspects when defining system chilled water temperature differences. In addition to many other topics, he provided two nuggets: **always consider variable primary systems for chilled water applications, and reset tower water temperatures during low loads.** Both of the items provide quick paybacks for owners.

Please remember to let your voice be heard. Take 5-10 minutes to complete the needed survey at <http://www.kerr-downs.com/websurvey/ASHRAE/Mem2/>. This will help determine the future of ASHRAE.

Are you going to Orlando, Florida for the Winter ASHRAE meeting? If so, Region VIII is hosting a dinner at Planet Hollywood. See the insert in this newsletter and please RSVP to: Art Giesler, Assistant Regional Chair at

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January Meeting Central Arkansas

(Joint Meeting with LRCSI)

Date: TUESDAY, JANUARY 11th
Location: Radisson Hotel
617 South Broadway
Little Rock
Cost: \$20.00 / person
Schedule: 4:30 pm Board Meeting
5:00 pm Social
6:15 pm Dinner / Meeting /
Table Top
Introductions
7:00 pm Presentation

(SEE ATTACHED RSVP FORM)

2003-04 Pinnacle Award presentation to be held at Society's Winter Meeting

The Resource Promotion Committee (RPC) has a trophy it displays at the Society's Annual and Winter meetings called the Pinnacle Award. The award was created about five years ago to recognize the chapters and RP-Chairs who collected the highest amount of contributions towards their goals for the year indicated. Last year Joel Davis, RP Chair for Southern Piedmont, won this honor. The trophy is displayed in the Meeting's registration area and has inscribed on it the names of the last five RP Chairs and their chapters who won this award.

The RPC would like to publicly present this award to Randy Moore and the Arkansas Chapter at the Winter Meeting in Orlando for collecting the most contributions for the Society in the 2003-04 RP campaign. The presentation would be made on the day during the President's Luncheon on Monday, February 7, 2005 (lunch starts at 12:30pm).

Board Meeting of December 1, 2004

1. Officers and Board Members Present

John Carter - President, Chance Hollingsworth - Vice-Pres. & Technology Chair, John Hodoway - Secretary, Steve Titus - Treasurer, Tracy Hayes - BOG & Newsletter Editor, Tom Hanlon - BOG, Randy Ragsdale - BOG, Rick Sellers - CRC Alternate & Resource Promotion Chair

2. Committee Chairs Present

James Dayer - Membership Promotion Chair, Kim Koch - Student Activities Chair, James McKinnie - Historian, Chris Ahne - Refrigeration Chair, Eddie Finley - Social Chair, Shawn Wilson - Reception Chair

3. Members Present - None

4. Meeting Minutes - The meeting was called to order by President John Carter at 10:34 AM.

A. Old Business - President John Carter reminded everyone that Full Circle Research Contributions must be to Society before December 31 and urged those who had not given a contribution to Rick to do so immediately. Some MBOs and Co-Chair or Subcommittee Chair names have not been given to John. James Dayer announced that Wade Wetzler is his Co-Chair and Shawn Wilson announced that Mike Luke is his Co-Chair.

Technology Transfer Chairman Chance Hollingsworth asked if there were any suggestions to provide to CSI for the January Joint Meeting. A brief discussion did not provide a consensus choice. Chance reminded the board that the February meeting would have the IAQ project report from the student project that the chapter funded as the technical session and that Charles Wetzler would present a program on fans.

Treasurer Steve Titus reported that the 2003-2004 collections were virtually complete and that all money would be collected by the next meeting.

The discussion of a pre-paid meals policy was postponed because of a full agenda for this meeting.

Newsletter Editor Tracy Hayes reported that she had attempted to open a chapter account at Kinko's and had been given an application for a Kinko's credit card. Everyone agreed that a commercial charge account was what is needed rather than a credit card.

B. New Business - President John Carter reminded everyone that early hotel reservations are necessary for the CRC in San Antonio because of the crowds that attend Fiesta during that period. The headquarters hotel is almost completely booked.

Tracy Hayes noted that the minutes as published in the

newsletter had an incorrect chapter number included. The minutes were approved with the chapter number corrected to "062".

The final 2003-2004 treasurer reports were tabled to the next meeting pending final collections. The November Treasurers Report was approved as submitted.

Resource Promotion Chair Rick Sellers moved that the board recommend to the membership that a \$10,000.00 contribution be made to ASHRAE Research. John Hodoway seconded. Motion passed.

Reception – No Report

Historian James McKinnie reported that he is conducting a survey of past presidents.

Resource Promotion Chair Rick Sellers reported that he will forward the Full Circle contributions to Society very soon.

Newsletter Editor Tracy Hayes reported that the deadline for the January newsletter is December 22.

Refrigeration Chair Chris Ahne reported that he is inviting refrigeration people to attend our meetings.

Student Activities Chair Kim Koch reminded the board that Engineers Week is the second week of February.

Membership Promotion Chair James Dayer reported that he has started a delinquency collection campaign by phone and e-mail.

Webmaster – No Report

Honors and Awards – No Report

Northwest Liaison – No Report. President John Carter encouraged the board to attend Northwest Section meetings.

Social Chair Eddie Finley reported that he is still collecting money from the Fall Golf Tournament. He is investigating the possibility of a joint Christmas party with BOMA.

President John Carter previewed the Membership Meeting announcements.

C. Action Items and Deadlines - 1. Treasurer Steve Titus is to e-mail the treasurer's report to the board prior to each meeting, 2. President John Carter is to contact Webmaster Ben Baugher about the website-hit count, website advertising and website links.

The meeting adjourned at 11:26 AM.

*Submitted by John Hodoway, Secretary
2004-2005 Arkansas ASHRAE Chapter #062*

Membership Meeting of December 1, 2004

The meeting began at 11:37 AM.

Program Chair Chance Hollingsworth introduced the tech session "Cooling Tower Selection for Optimal Performance" which was presented by Dan Kelly of Evapco.

Optimal Performance is an objective that must successfully balance several desirable and frequently conflicting characteristics. Those characteristics include first cost, energy consumption, sound level, maintenance difficulty, life cycle cost, and "green" objectives.

First cost is principally driven by the selection of the materials of construction. A tower is a fairly corrosive environment and cost and corrosion resistance rise proportionally to one another. Sound attenuation materials, ladders, platforms and sump sweeper systems all add to the first cost of the tower.

Energy consumption is affected by both selection and operation of the tower. A counter-flow tower is inherently more efficient than a cross-flow tower. Induced draft is more efficient than forced draft. Selection of a closer approach between wet bulb and leaving water improves efficiency. Two speed motors and VFDs increase operating efficiency. In multi-cell towers all operating cells should be running at the same speed.

Sound can be reduced by adding attenuation material to the tower as well as by oversizing the tower to yield a much lower fan horsepower for the load.

Good maintenance is necessary for dependable operation of the tower, continued operation at design efficiency and to keep the tower warranty valid. Maintenance is affected by the choice of belt or gear driven fans, sloped cold water basins, wide orifice nozzles, corrosion resistant materials of construction, and proper water treatment that monitors pH, conductivity, motor current, water level and nozzle spray pressure.

President John Carter asked for introduction of guests. Eleven guests were introduced. He then made the following announcements.

1. Northwest Section meeting at AQ Chicken House on December 2;
2. ASHRAE webcast on "Mold" scheduled for April 13, at Trane.
3. CRC in San Antonio April 14-16. Fiesta occurs at that same time. Hotel reservations must be made quickly.
4. The board recommends that the Chapter make a \$10,000.00 contribution to ASHRAE Research. Motion for the Chapter to approve by John Carter, second by James McKinnie. Motion passed.
5. There is group seating available for the RimRockers

game on Friday. If interested, see Eddie Finley.

6. The program will be by Hugh Crowther, current and past Society committee member and author of parts of the ASHRAE Handbooks.

Meeting broke for lunch at 12:07 PM.

Meeting resumed at 12:24 PM.

Bill Harrison who knows Hugh from their work in ASHRAE introduced Hugh Crowther. The program is "How to Optimize a Chiller Plant" which was the subject of Mr. Crowther's article in the July, 2004 issue of the *ASHRAE Journal*. (ASHRAE members may download this article, as well as any others, as a pdf file from the ASHRAE website at no charge.)

Mr. Crowther introduced his program by stating that the presentation was designed for a longer format than was available for the meeting and that he would get as much as possible into the time available.

Several things must be considered to optimize a chiller plant. Among them are: Full Load vs. Annual Load; Air-Cooled Vs. Water Cooled Chillers; Single vs. Parallel vs. Series; Constant Flow vs. Variable Flow; Equipment Efficiencies; Range vs. Supply Water Temperature; Condenser Water Range; and Condenser Relief.

It is well known that any air conditioning system operates at full capacity very little of the time, yet little design time is used to optimize the plant for the many, many hours of part-load operation. At design conditions, chillers consume 58% of HVAC energy; in actual operation over a year chillers consume 33% of HVAC energy. For pumps, it's 13% at design, but 22% for a year; for towers, it's 5% at design, but 2% for a year; and for fans, it's 24% at design, but 43% for the year.

There are things that we can do to improve chiller efficiency, but it's fairly evident here that paying attention to pump and fan systems can reap large energy rewards.

In Constant vs. Variable Flow, several observations may be made. Variable flow is based on design load. Constant flow is based on connected load. Variable flow has smaller pumps and piping. Variable flow modulates the flow to the actual load. Constant flow pumps design flow all the time the chiller is on line. Variable flow will cut the pump work in half! It is the single biggest savings known for chiller plants.

Increasing the chilled water temperature range will reduce the flow requirement and lower pump horsepower. Today's coils operate better at higher ranges and make this easy to do. However, changing the supply water temperature downward does not yield better overall efficiency; the chiller takes

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palatusa@aol.com or (817) 589-9372; Fax (817) 284-1531.

This month's central section meeting is a joint meeting with CSI. This will be a great chance to visit with some friends and colleagues that you may not have seen in a while. Come to the Radisson Hotel on January 11th (the second week in January). Jeff Trower will be back in our state; this time to speak about Thermal Guidelines for Data Centers at the **NW section meeting on January 6th**. This was a very good meeting in the central section and will be timely in the NW section with the growth of data centers in our area. Come to the meeting and remember that the **central section meeting is at the Radisson Hotel on Broadway in Little Rock on January 11th**!

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more than the fans give up. Leaving chilled water temperature is determined by dehumidification requirements, not by energy considerations.

As far as condenser water range is concerned, increasing condenser water temperature range reduces pump and piping size and pump work. This hurts chiller performance by increasing lift. A 5°F increase in lift equals a 10% increase in lift. This improves tower performance, but towers are inexpensive. Increased condenser water range generally only makes sense for large condenser pumps and long piping runs.

As condenser water temperature is lowered, chiller performance improves; the changes are significant. Condenser water relief should be aggressively sought. Oversizing towers will lower condenser water temperature; even 83F instead of 85F is a big deal. This usually has small impact on cost. Dry climates should design for the lowest condenser water temperature possible.

A control sequence for chiller-tower optimization should have these features. It requires power meters for chiller and tower fan motor. It must measure and sum power draw for chiller and fan motor. Lower the temperature setpoint 1f and check again in 15 minutes. If overall power goes down, lower setpoint again; if not, raise setpoint. This will find the point of least power usage.

The meeting adjourned at 1:20 PM.

*Submitted by John Hodoway, Secretary
2004-2005 Arkansas ASHRAE Chapter #062*

JANUARY PROGRAM - CENTRAL ARKANSAS

"Fire in the City "

Presented by Mr. Kevin McKay, Territory Manager

Come join us for a highly educational meeting devoted to fire protection - specifically, Firestopping. Firestopping is growing in its use as a passive fire protection system in protecting human life and property. Widely misunderstood firestopping when properly installed will prevent migration of not only fire, but also smoke and toxic gases through fire rated floors and walls. Please join us in learning more about this timely topic.

Continuing Education: 1 Contact Hour (0.1 CEU/1 PDH/1 LU Hour/HSW)

JOINT MEETING WITH LITTLE ROCK CONSTRUCTION SPECIFICATIONS INSTITUTE
(SEE ATTACHED CSI ANNOUNCEMENT & RESERVATION FORM)

ENERGY TECHNOLOGY - TODAY AND TOMORROW

March 2, 2005, a Fuel Cell Demonstration and Q&A session will be held for university engineering instructors, utility and government agency representatives and private sector professionals interested in energy technology. The event will be held the first Wednesday of March at the UALR ETAS building in Little Rock, from 8:30 - noon. The project funded by the Arkansas Energy Office features John Davis, Director International Sales – ReliOn, Inc.

John holds degrees in Electrical Engineering and Computer Engineering from Clemson University. His talents have helped push his career into successfully marketing alternative energy solutions such as fuel cell technologies. Over his 25 year career, John has worked in over 15 different countries including Europe and Latin America. Over the past 5 years, John has helped pioneer the Fuel Cell Market by focusing exclusively on selling Hydrogen and Zinc/Air Fuel Cells into real-world applications. The Fuel Cell Market is growing exponentially. New applications are being developed every year. John's passion for finding new ways to economically use fuel cell technologies will continue to improve our way of life today and in the future. Join us for an exciting and enlightening morning.

Seating is limited and registrants will be accepted on a first come first served basis. To register contact Ms. Markey Ford, Energy Education Coordinator at mford@1-800-Arkansas.com. or by telephone @ 501-682-7690.

This Month in Arkansas ASHRAE History...

By James McKinnie, *Chapter Historian*

16 Jan 1973 – The chapter board met at the Sam Peck Hotel at 5pm to discuss the treasurer's report, delinquent dues, the upcoming national meeting and scholarships. The technical session was on "constant temperature rooms" by Vernon Vetter. After dinner, Taylor Kahoe of Associated Air Balance spoke on both air and water system balancing.

19 Jan 1982 – The board met at the Sam Peck Hotel at 5pm. Nominees for both regional and national awards were offered, and Don Gaddie announced that his committee was working on 20 new applications. The technical session was by Joe Miller of Miller-Trane on different methods of using desuperheaters. After dinner, announcements were made on the upcoming national meeting in Houston. Two programs were held. The first was by Dr. Morris Cranmer of Intox Laboratories on the problems and requirements of furnishing sterile mice for research purposes. The second was by Ollie Zeiler, maintenance supervisor of the 500 Building for Southwestern Bell Telephone Company, on the special problems of that industry.

10 Jan 1986 – The chapter attended Murry's Dinner Playhouse to watch "Greater Tuna," in lieu of the traditional Christmas party.

**ASHRAE Region VIII
Dinner – February 7, 2005
Monday Night
6:00 PM to 8:30 PM**



**Please RSVP to Art Giesler
Assistant Regional Chair
palatusa@aol.com
(817) 589-9372
Fax (817) 284-1531**

Reservations are required

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Board of Governors

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Tom Hanlon	501.661.0621	tjhanlon@trane.com
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Randy Moore (Delegate)	501.280.0404	rmoore@airetechcorp.com
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