



The Razorback Report

www.arkansasashrae.org

Volume XX, Issue 6, February 2009

Arkansas Chapter Newsletter for the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.

FEBRUARY MEETINGS

Northwest Arkansas

Date: Thursday, February 5th

Location: Whole Hog BBQ Bentonville

Cost: TBD

Schedule:

4:30 pm Steering Committee Meeting

5:30 pm Social

6:00 pm ASHRAE Business / Dinner

Program—"Supermarket Refrigeration Design" - Richard Royal

Central Arkansas

Date: Wednesday February 4th

Location: Camp Aldersgate

Cost: \$15 / person

Schedule:

10:30 am Board Meeting

11:30 am Tech Session - TBA

11:45 pm Lunch

12:00-1:00 pm Program - "Modern refrigerant Piping Practices" - Joe Kirby

The President's Message

By Kim Koch

Chapter President

Through my years with Arkansas ASHRAE I have been amazed several times by how close knit our ASHRAE community is and how we pull together to support when one of our members is in need. It is with a prayerful heart, that I ask this community to put their strength in thoughts and prayers behind our chapter treasurer and long time member Steve Keen. Steve has been diagnosed with colon cancer this past week and is undergoing treatment at Baptist Medical Center in Little Rock. I spoke with Steve's wife Linda and she asked that we all keep them in our thoughts and prayers during this time.

I appreciate everyone who came out and attended our joint meeting with CSI in January. The turnout at that meeting was on the highest we have ever had at this joint meeting and we look forward to continuing a successful relationship with CSI.

In our January meeting Bill Simpson asked the chapter to vote on ASHRAE scholarships. Four scholarships were approved. The scholarships will be awarded to recipients in the name of William Harrison and Alan Bullard.

We are looking towards the end of our ASHRAE year now. The CRC in Lubbock is fast approaching. Their CRC website is up and running at <http://www.crclubbock.com/>. Check it out and make your hotel and plane reservations early.

We will be looking for people to fill committee positions prior to CRC so please take some time to consider if you would like to take this opportunity to get involved in the chapter.

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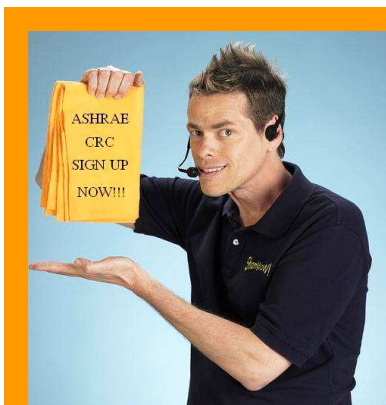
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Region VIII CRC

**ARE YOU
REGISTERED YET?**

**DO IT NOW !
WE CAN'T BE HERE
ALL DAY!!!**

HERE'S HOW TO SIGN UP:
[WWW.CRCLUBBOCK.COM](http://www.crclubbock.com)

Month	Tech Session	Speaker	Meeting Topic	Speaker	Section	Date	Location	Meeting Designation	Sponsor
Sept	BIM— Lessons Learned	Mike Fullerton	ASHRAE & BIM	Gordon Holness ASHRAE President Elect	Central	9/4	Next Level Events— Union Station	Membership Promotion	TBA
					NWA	9/4	Golden Corral		
Oct	Eco Friendly Water Treatment	Gary Wirges	Water Conservation In The Sustainable Environment	Dennis Schnell	Central	10/1	Camp Aldersgate	Sustainability	TBA
					NWA	10/2	Whole Hog		
Nov	NA	NA	Presidential Visit— Maintain To Sustain	ASHRAE President Bill Harrison	Central	11/5	Next Level Events	Student Meeting	TBA
					NWA	11/4	AQ Chicken		
Dec	Research Promotion	Steve Titus	Data Center Cooling Requirements	Mike Lawler	Central	12/3	Camp Aldersgate	Research Promotion	TBA
					NWA	12/4	Whole Hog Bentonville		
Jan	TBA – <i>Joint Meeting with CSI</i>	Rich Roe	Building Be- yond The Code	Rich Roe	Central	1/13	Next Level Events	Joint Meeting w/ CSI	TBA
	-				-	Energy & Sustainability	Dr. Darin Nutter		
Feb	TBA	TBA	Refrigerant Piping Practices	Joe Kirby	Central	2/4	Camp Aldersgate	Refrigeration	TBA
			Supermarket Refrigeration Design	Richard Royal	NWA	2/5	TBA		
March	TBA	TBA	ASHRAE 90.1-2007 Update	Mick Schwedler	Central	3/4	Camp Aldersgate	Student Day	TBA
					NWA	3/5	TBA		
April	TBA	TBA	Tour Bethel Elementary	NA	Central	4/1	Bethel Elementary Bryant AR	Sustainability	TBA
	TBA	TBA	Tour Tyson Discovery	NA	NWA	4/2	TBA		
May	Social	NA	Past Presidents Night	NA	Central	TBA	Dickey Stephens Park	TBA	TBA
					NWA	TBA	TBA	TBA	TBA

Membership Report

Submitted By: Joel Funkhouser – Membership Chair

I'd like to welcome our four newest members: Jake Skinner of Little Rock, Randolph Johnson of Rogers, Joshua McCall of Rogers, and Jonathan Shaddox of Springdale. I applaud you for your interest in the HVAC&R field and look forward to seeing you at our February meeting!

We have a strong chapter, and additional members will help to make us even stronger. ASHRAE offers invaluable resources to design engineers, contractors, and owners alike, and everyone that attends meetings is encouraged to seek membership to aid in strengthening our chapter. As always, if you have any questions pertaining to membership, please contact me and I'll be happy to assist you.

Meeting Minutes

Submitted by Marc White—Secretary

Board Meeting of January 13, 2009

Officers and Board Members Present

Kim Koch, President
Chris Ahne, President-elect/CTTC
Steve Keen, Treasurer
Marc White, Secretary
Chris Shaw, BOG
Charles Wetzler, BOG

Committee Chairs Present

Bill Simpson, Student Activities Chair
Lee Greeson, Reception Chair
Joel Funkhouser, Membership Chair
Micah Spahn, Membership Co-Chair
Mark Ring, Newsletter Editor

Board Meeting Minutes

Bill Simpson presented the five scholarship applications he received to the Board for review. The chapter has \$3000 its William A. Bullard scholarship fund. The decision was made to present one \$1000 scholarship in the name of Bill Harrison to Robert Jack (ATU) and the remaining money in four \$500 scholarships to Chase Shaw (UA), Mark Mizell (ATU), Todd Spain (UA) and Tracy Emmerling (Bryant High School).

Kim Koch stated that she has been contacted by Terry Granderson, member of the Arkansas HVACR Board, looking for ASHRAE's advice on the enforcement of ASHRAE Standard 62.1. After some discussion among the chapter Board members, Kim will make the offer to Terry to help organize and sponsor a training session on ASHRAE 62.1 geared toward inspectors. Kim announced that the chapter nominating committee has been formed and the members are Jim Monk (chair), Sam Cummings, Paul Brisco, Hank Wade and Chance Hollingsworth. The Board will provide the committee with a list of names to consider for chapter officer and Board of Governors.

Chris Ahne announced that there were 46 RSVP's from ASHRAE members and 40 RSVP's from CSI members for today's joint meeting with CSI. Chris talked about the upcoming Certified Energy Manager (CEM) seminar presented by AEE the first week of March. He will get a flyer sent out to the chapter members about the event which consists of 4 days of seminar with a test on the 5th day. The Arkansas Department of Energy has offered to pay 50% of the tuition for attendees. With this offer, Chris estimates that the out of pocket cost for each attendee will be \$1000. The chapter will advertise the event and will collect tuition money from attendees and will send a single tuition check to AEE. Charles Wetzler questioned the legality of the chapter collecting individual tuitions and sending a single check to AEE for this event. Steve Keen will check with the RVC for guidance.

Joel Funkhouser stated that there are three new chapter members this month. He will make this announcement during today's meeting.

Mark Ring informed everyone that the deadline for newsletter input will be January 20.

Steve Keen distributed the treasurer's report which was approved by acclamation.

The November and December meeting minutes were approved by acclamation.

Kim Koch adjourned the Board Meeting.

(Continued on page 5)

Region VIII CRC

Submitted By David Laughlin - CRC Host

April is right around the corner and it'll be time for the Region VIII CRC in Lubbock, Texas. The dates are set, the venue is set, the entertainment is set, the speakers are set, everything's set! All we need is you.

We've made it easy for you. Follow the link below to the CRCLubbock.com website and you'll find everything you need. One web page gets you to the automatic registration at the hotel, links to airline and car rental reservation pages, and hopefully in a few days the registration page run through ASHRAE. (They're kind of busy with the Winter Conference right now but they will have our registration page up and running shortly.) Until then you can go ahead and get your rooms at the hotel, take a closer look at the speakers we have lined up for the technical session, and get ready for your trip to the High Plains of West Texas.

Ya'll come. . .we're looking forward to it.

<http://www.crclubbock.com/>

Chapter Technology Transfer

Submitted By Chris Ahne — CTTC Chair

Please see the attached flyer beginning on page (9) for some upcoming training that our ASHRAE chapter is hosting and is made available through a grant from Energy Efficiency Arkansas.

Please note that the costs of this seminar are a **great value**. There is a maximum class size of 32 so please RSVP to me as soon as possible!

ASHRAE Satellite Broadcast/Webcast

On Wednesday, April 22, 2009, ASHRAE's Chapter Technology Transfer Committee (CTTC) will present a satellite broadcast and simultaneous webcast on "**Clean, Lean and Green – IAQ for Sustainable Buildings.**"

Online registration for site coordinators and webcast viewers begins March 2nd at www.ashrae.org/iaqbroadcast. Registration for satellite viewers begins March 16th. Information about the program and speakers is available at www.ashrae.org/iaqbroadcast.

Three PDH credits may be granted to those who view the program and then complete the Participant Reaction Form on our webpage following the broadcast.

If you have questions, call (678) 539-1206 or email ashrae-SatelliteBroadcast@ashrae.org.

(Continued from page 3)

Announcements:

Kim Koch reminded everyone that CRC is in April and will be in Lubbock, TX this year. She also introduced three high school students from Little Rock Christian Academy that have been interning with her company for the last two weeks.

Joel Funkhouser introduced this month's three new ASHRAE members.

Chris Ahne announced the CEM seminar which will be held March 2 through 6. Chris then asked Tim Staley, who has attended this seminar in the past, to give a brief summary of his experience in the workshop.

Bill Simpson gave the board's recommendations for scholarship awards which were approved by acclamation.

The topic for today's joint meeting with CSI was "Roof Insulation – ASHRAE and Beyond Code Initiatives." The presentation was made by Richard Roe of Atlas Roofing Corporation. Today's energy situation is critical for many reasons including our country's increasing reliance on foreign sources, continued global economic growth, rising prices for energy and the impact on the environmental foot print. Buildings currently use 40% to 50% of the energy in this country with 71% of the country's fossil fuel use being for buildings. Codes, which are typically reactionary, will play a role in addressing this situation. In an effort to reduce energy use in buildings, new requirements for minimum R-values in roofing insulation are forthcoming. The new ASHRAE 90.1-2007 will have the first increase in roof and wall insulation requirements since 1989. These changes will impact all climate zones and all building types. In addition, states are addressing carbon foot prints with 32 states having adopted carbon emission programs. Arkansas is currently in the process of adopting an emission program.

Meeting adjourned.

Have you changed jobs recently?
Do you have a new email provider?

**If so, you probably need to update your
Biographical Information with Society.**

We are continuously trying to keep our membership data as current as possible. Please take a minute to make sure your contact information is accurate and up to date. You can navigate to the Biographical Record System through the membership section on ASHRAE's website, www.ashrae.org, or the following URL: <http://xp20.ashrae.org/bio/>

Future ASHRAE Meetings:

**2009 ASHRAE Annual Meeting
June 20 - 24
Chicago, IL**

**2010 ASHRAE Winter Meeting
January 23-27 2010
Orlando, FL**

The Razorback Report is published monthly by the Arkansas Chapter of ASHRAE. Statements made in this publication are not expressions of the Society or of the chapter and may not be reproduced without special permission from the chapter.

2007-2008 Chapter Officers

<u>President</u>	Kim Koch	501.666-6776	kkoch@tmecorp.com
<u>Vice-Pres.</u>	Chris Ahne	501.661-0621	cahne@trane.com
<u>Treasurer</u>	Steve Keen	501.374-5420	skeen@powersar.com
<u>Secretary</u>	Marc White	501.664-3311	mwhite@batsonbravo.com

Board of Governors

Charles Wetzler	501.590-2703	cgwetzler@yahoo.com
Don Huggins	501.374-3731	dhuggins@pettitinc.com
Chris Shaw	501-280-0404	chris@airetechcorp.com
Steve Titus (CRC Alternate)	501-280.0404	chance@airetechcorp.com
John Hodoway (CRC Delegate)	501.372.2900	john.hodoway@mail.ashrae.org

Committee Chairs

Membership	Joel Funkhouser	jcfunkhouser@garverengineers.com
Student Activities	Bill Simpson	wsimpson@trane.com
Programs	James Dayer	jdayer@fluidsolutionsinc.com
Historian	Steve Titus	sctitus@aristotle.net
Refrigeration	Miguel Purdy	mlpurdy@vcaw.com
Research Promotion	Steve Titus	sctitus@aristotle.net
Newsletter	Mark Ring	mark@airetechcorp.com
Publicity	Charlotte Bruner	charlotte@johnprinceco.com
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Social	Tony Demarco	tony@airetechcorp.com
Reception	Lee Greeson	lgreeson@batsonbravo.com
Webmaster	Haidara Agalheir	hagalheir@trane.com
Continuing Education	John Carter	john@jtcarterco.com
Sustainability	Tom Hanlon	thanlon@tmecorp.com

THE RAZORBACK REPORT

ARKANSAS CHAPTER OF ASHRAE
P.O. Box 180
LITTLE ROCK, AR 72203

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

Arkansas Chapter Meeting RSVP Form

Company Name: _____

Phone #: _____ Fax #: _____

Signed: _____

ROUTING

For reservations to the Central Arkansas Chapter meeting send this form by **Monday February 2nd** to **Kim Koch** : kkoch@tmecorp.com or via **FAX** at 501- 663-8888

For reservations to the Northwest Arkansas Chapter meeting send this form by **Tuesday February 3rd** to **Landon Lay** : landon.lay@hei-eng.com or via **FAX** at 479-361-5977.

MEMBER NAME (PLEASE PRINT)	CENTRAL February 4th.	NW ARK February 5th.	EATING (Y or N)

NOTES: Please fax this form to the name and fax number as referenced above
 The meal is no cost to student members, however an RSVP is necessary.
 All "no shows" will be responsible for the cost of their meal.
In order to provide you with the best service for your Chapter's money, it is necessary to RSVP for each meeting.

RSVP for the February meeting online at www.arkansasashrae.org

February Meeting Topics

NWA Program - "Supermarket Refrigeration Design" - Richard Royal

Central AR Program - "Modern Refrigerant Piping Practices" - Joe Kirby

Region VIII CRC

Submitted By: Steve Titus, History Chair



Bailey

Goodman

Energy Plans By Engineers Win Contest

Two Little Rock consulting engineers, Jim Bailey of Riddick Engineering and H. W. Goodman Jr. of Goodman Engineers, won in their divisions of the Southwest Regional Energy Management Design Competition.

The competition is held by the American Society of Heating, Refrigerating and Air Conditioning Engineers and included entries from eleven chapters in Arkansas, Oklahoma, Louisiana and Texas.

Bailey's entry was for the energy conserving retrofit of the State First Bank at Texarkana in the "existing building" category.

Goodman's entry was the Arkansas State Department of Health building addition at Little Rock in the "new construction" category.

Bailey's design converted the existing system at State First Bank from a double duct constant air volume system to a double duct variable air volume system. The wasteful mixing of hot and cold air streams was eliminated and fan horsepower requirements were reduced.

Other retrofits include night shutdown of air conditioning machines, lower lighting levels and reflective window film to reduce cooling requirements. The conversion cost was approximately \$181,000, with anticipated annual savings of \$66,000, indicating a payback of approximately 2 1/2 years.

The new addition to the Arkansas State Department of Health Building incorporates the latest energy conserving ideas into the original design. These included passive energy conserving features such as efficient insulations and shading of glass areas to reduce heating and cooling requirements.

The numerous fume exhaust hoods in the building ordinarily would have caused high operating costs and significant losses of conditioned air. Goodman's staff devised a system in which the exhaust and supply air systems to each hood are activated by switches at each hood.

In addition, the supply air system to the hoods utilizes outside air during cooling season and relief air from the building heating system during the heating season to further conserve conditioned air.

Other features include automated energy management of fans, pumps and air conditioning machines to minimize electrical and gas usage in accordance with building demands. In addition, the building thermostats are of the dead-band type to eliminate heating or cooling between 65 degrees and 78 degrees to comply with state and federal requirements.



Leave a Lasting Impression

Perfect for chapter, individual or company recognition.



ASHRAE recognizes our members are the foundation of our success. Demonstrate your commitment to our goals, memorialize your support and leave a lasting testament to your membership in ASHRAE through purchase of a paver at our newly renovated ASHRAE Headquarters. Join ASHRAE as we "walk the talk" and celebrate our new sustainability showcase.

To purchase a paver, visit www.ashrae.org/building

Continuing Education

Submitted By Chris Ahne — CTTC Chair

Now available, the expanded in depth course you've been asking for!



This is the course that will empower you to "put it all together" and get the results your company expects.

Comprehensive in scope, this five-day program takes you systematically from the underlying fundamentals to the specific "how to's."

This week-long program of instruction covers the specific techniques necessary to maximize your effectiveness as an energy manager, vice president of operations, or facilities manager.

PLUS
EARN YOUR C.E.M.

CEM[®]
The optional Certified Energy Manager (CEM[®]) examination will be administered at the conclusion of this program (separate application required). See inside for details.

LEARN HOW TO ENHANCE YOUR OPERATIONS, CONTROL YOUR COSTS, AND EXPAND YOUR CAREER DEVELOPMENT

Your opportunity to take part in AEE's unique Comprehensive Five-day Training Program for Energy Managers

☆☆☆ Covers the 2005 Energy Policy Act ☆☆☆



A comprehensive, detailed instructional program covering the full scope of technical, economic, and regulatory components of effective energy management.

Presented by: **AEE**
The Association of Energy Engineers

Brought to you by:
Arkansas ASHRAE Chapter

Sponsored by:
Energy Efficiency Arkansas

Mark your Calendar!

March 2nd - 6th, 2009

Location:
**1501 Westpark Drive, Suite 9
Little Rock, AR 72211**

(Continued on page 10)

Continuing Education

Submitted By Chris Ahne — CTTC Chair

Everything you need to know about energy management in one week!

THE NEED FOR ENERGY MANAGEMENT

- Building energy cost control
- Utility DSM programs and deregulation — energy efficiency and peak demand reduction
- Commercial business energy cost control
- Industrial plant operation improvement
- Reducing energy costs
- Reducing environmental emissions
- Improving product quality
- Improving plant productivity

CONDUCTING AN ENERGY AUDIT

- Purpose of the energy audit
- Facility description and data needs
- Major systems in the facility
- Data forms for recording information
- Collecting the actual data
- Identification of preliminary energy management opportunities

ENERGY AUDIT INSTRUMENTATION

- The need for instrumentation
- Light level meters
- Electric meters
- Volts, current, power, energy, power factor
- Temperature-measuring instruments
- Combustion efficiency measurement
- Air flow and air leak measurement
- Thermography
- Data logging

ENERGY CODES AND STANDARDS

- Building codes
- ASHRAE standards (62, 15, 3, 90.1)
- ASME, IEEE, and other standards
- Federal legislation
- NECPA, PURPA, NGPA, CAAA, NEPA of 1992
- CFC replacements
- Montreal Protocol, Global Climate Change
- National Energy Policy Act of 2005
- Proposed tax incentives 2002

BUILDING ENERGY USE AND PERFORMANCE

- Fuel types and costs
- Energy content of fuels
- Energy conversion factors
- Building envelope
- Natural gas purchasing
- Retail wheeling of electricity
- Major building energy use systems

ENERGY ACCOUNTING IN BUILDINGS AND FACILITIES

- Energy use index, energy cost index
- Where energy is used in facilities
- Lighting and HVAC energy use

ENERGY RATE STRUCTURES

- Identifying types of energy use
- Electric rates, gas rates
- Oil, coal, and other rates
- Steam and hot water rates
- Factors in controlling fuel costs
- Utility incentive programs

ELECTRIC RATE STRUCTURES

- Short history of electric rates
- The difference between power and energy

WORKBOOK, TEXT, AND PDH CREDIT

COMPREHENSIVE COURSE WORKBOOK AND TEXT. The seminar workbook has been written to function as a valuable resource, not only during the seminar presentation, but also back on the job. Detailed guidelines, supporting data, and graphic elements reinforce the points made during instruction. Each participant will also receive a copy of the textbook, *Guide to Energy Management*.

PDH CREDITS AND A COURSE CERTIFICATE. All participants in this five-day course will receive PDH Credits. The Association of Energy Engineers will also award you an attractive certificate of completion.

COURSE OUTLINE

- Electric meters
- Components of electric rates
- Example rate structures
- Factors in controlling electric costs
- Electric utility incentive programs
- Special schedules (interruptible, TOU, real-time pricing)
- ECONOMIC ANALYSIS OF ALTERNATIVE INVESTMENTS
- Economic decision analysis
- Simple economic measures
- The time value of money
- Present and future values
- Cost and benefit analysis
- After tax cash flows
- ALTERNATIVE FINANCING
- Role of performance contracting
- Different sources (loans, stock sales, bonds, etc.)
- FEMP and alternative financing
- True lease, capital lease, bonds, etc.
- WASTE HEAT RECOVERY
- Objectives: design criteria
- Types and maintenance of heat exchangers
- Regeneration; economizers
- LIFE CYCLE COSTING
- Concept of life cycle costing
- Purchase costs vs. operating costs
- Example analyses
- Government standards — FEMP
- FUEL SUPPLY AND FUEL SWITCHING
- Alternative fuel choices
- Technology choices
- HVAC systems, boilers, heaters, industrial processes
- Benefits of deregulation — electric, gas, and oil
- ELECTRIC ENERGY MANAGEMENT
- Peak load reduction
- Power factor improvement
- Energy management control systems
- Load management
- Harmonics and other power quality issues
- LIGHTING
- Basics of lighting and current lighting technologies
- New lighting technologies
- Economic evaluation of example lighting improvements
- Lighting standards
- EPA Green Lights program
- T12, T8, T5 lamps
- Compact fluorescents
- HID, sulfur lamps
- MOTORS AND ADJUSTABLE SPEED DRIVES
- How motors work
- High-efficiency motors
- Examples of cost-effective motor changes
- Use of adjustable speed drives
- Example of cost-effective ASD use
- Improved motor belts and drives
- Compressed air management
- Adjustable speed drive alternatives: eddy current clutches, permanent magnet

- clutches, variable frequency drives, inlet and outlet vane control, etc.
- HVAC SYSTEM
- Types of HVAC systems and new technologies
- The vapor-compression cycle
- Air conditioning loads
- Chiller improvement example
- Control, thermal storage, absorption systems
- CONTROLS AND ENERGY MANAGEMENT
- Night set back
- Optimum start/stop
- Thermostatic economizers
- Temperature resets
- PID control, pneumatic controls
- Control characteristics
- DDC
- INSULATION
- Types of insulation
- Heat flow calculations
- Economic levels of insulation
- Passive thermal energy
- Process insulation
- GREEN BUILDINGS, LEED®, AND ENERGY STAR
- Green buildings and sustainable design
- U.S. Green Buildings Council and LEED®
- LEED® certification: LEED®-NC, EB, CI, CS
- ASHRAE 90.1 Energy Cost Budget Method
- Energy and atmosphere, indoor environmental quality, water efficiency
- EPA and the ENERGY STAR program
- ENERGY STAR Building Label
- Energy performance ratings and profile manager
- BOILERS AND STEAM GENERATION
- Basics of combustion systems
- Excess air control
- Boiler efficiency improvement
- Blowdown management, condensate return, turndowns
- Combustion controls
- Waste heat recovery
- Steam traps — purpose and testing
- Process insulation
- Example of boiler improvement
- COGENERATION (CHP)
- What is cogeneration
- Types of cogeneration cycles
- Examples of cost-effective use of cogeneration
- QPs and deregulation
- Use of waste for fuel
- Fuel cells, microturbines, etc.
- MAINTENANCE
- Maintenance management systems
- Monitoring for maintenance
- Infrared photography for maintenance
- Cost of:
 - Air, steam, gas leaks; uninsulated surfaces
- ALTERNATIVE FINANCING
- Different financing methods
- Attributes of each method
- After-tax cash flow analysis

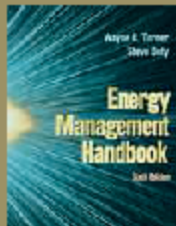
ALSO AVAILABLE FOR PURCHASE...

Energy Management Handbook Sixth Edition
By Wayne C. Turner

This comprehensive handbook has become recognized as the definitive stand-alone energy manager's desk reference, used by thousands of energy management professionals throughout the industry. The fifth edition includes new chapters on building commissioning and green buildings. You'll find in-depth coverage of every component of effective energy management, including boiler and steam system optimization, lighting and electrical systems, HVAC system performance, waste heat recovery, cogeneration, thermal energy storage, energy management control systems, energy systems maintenance, building envelope, industrial insulation, indoor air quality, energy economic analysis, energy procurement decision making, energy security and reliability, project financing, outsourcing of energy services, and overall energy management program organization.

81/2 x 11, 917 pp., illus., Hardcover, \$235 (Price includes \$10 shipping & handling)

TO ORDER, go to the bookstore at www.aecenter.org or complete the appropriate portions of the seminar registration form provided in this brochure.



(Continued on page 11)

Continuing Education

Submitted By Chris Ahne — CTTC Chair

Please note: you must apply separately to take the C.E.M. examination!

The path to becoming a more successful energy manager starts here.

In its years of developing seminar programs, AEE has come to realize that certain disciplines require more intensive instruction than others. Based on this realization, this five-day program was designed to provide professionals with the kind of in-depth energy management training they need to achieve the highest possible degree of success as energy managers. Now AEE's most requested program, this seminar has been completed by thousands of professionals since its inception in 1994.

The program begins by examining the basic fundamentals within all key areas of energy management. From there, the instructors systematically move to a "working level" knowledge of the specific principles and techniques needed to really get the job done. This approach has been specially designed to fulfill the needs of professionals who seek a broader and more detailed learning experience than can be provided in AEE's shorter courses. In only five days, you can gain the knowledge and confidence it takes to effectively apply state-of-the-art principles of energy management, and to achieve control over energy costs in your organization — whether you're responsible for managing a single facility or developing an energy management program for multiple corporate facilities, government buildings, etc.

The course covers all areas critical to effective energy management.

The program is designed for energy managers and other professionals who can benefit from in-depth exposure in areas such as analyzing energy bills, understanding energy rate structures, conducting economic analyses, or applying cost-effective, cost-cutting technologies that can have a real impact on the bottom line. Maintenance personnel — especially those who come to this course without extensive technical backgrounds — can particularly benefit from the instructor's step-by-step approach. Each topic is introduced at a beginning level, and gradually proceeds to more complex issues so that, ultimately, the new skills learned can be applied as soon as attendees return to their companies and operations.

ABOUT YOUR INSTRUCTORS...

T. KENNETH SPAIN, P.E., C.E.M., C.L.E.P., is an experienced energy analyst with over two decades of experience helping clients find ways to reduce energy costs. Mr. Spain is a Senior Research Associate at The University of Alabama in Huntsville, where he also serves as Project Manager for IdEAS, the Industrial Energy Advisory Service; the purpose of IdEAS is to advise business, industrial, institutional, and government clients regarding cost-effective applications of energy-saving technology.

STEVE SAIN, P.E., C.E.M., C.M.V.P., C.E.P., brings to this program more than twenty years of experience in the energy conservation industry, including involvement in numerous energy conservation and alternative financing projects, especially involving U.S. federal agencies. He has served as expert witness in multiple performance contracting lawsuits, representing the owner or the contractor, never losing a case. In 1994, Mr. Sain was named AEE's "International Energy Engineer of the Year," and in 1995 was also awarded "Birmingham Engineer of the Year" (covering all engineering disciplines) by the Engineering Council of Birmingham. He has traveled throughout the U.S., as well as Europe, Asia, and South Africa teaching energy conservation, life-cycle costing, and alternative financing seminars for the U.S. Army, Air Force, General Services Administration, Edison Electric Institute and AEE. Mr. Sain is a Certified Life-Cycle Costing Trainer in accordance with the Federal Energy Management Program.

ABOUT EEA Sponsorship

This event is being sponsored by Energy Efficiency Arkansas. (EEA) The Energy Efficiency Arkansas program is fuel neutral and has a high probability of providing aggregate ratepayer benefits to the majority of utility customers, and should benefit the Arkansas economy and promote a sustainable market for energy efficiency services and products. To encourage participation in the Certified Energy Manager course, EEA will off-set the cost of tuition by sponsoring one-half of the tuition (\$543.00), the other half is paid by the attendee. The funds made available by EEA are administered by the Arkansas Energy Office.

OPTIONAL CERTIFICATION EXAMINATION

Take the Certified Energy Manager (CEM) examination on the last day of the seminar.

The "Certified Energy Manager" credential provides recognition to individuals who have demonstrated a high level of competence, proficiency, and experience in the field of energy management. Those wishing to earn the CEM credential must meet specific educational and professional experience requirements, and in addition must pass a written examination. This five-day training course is an excellent "refresher" program for those preparing to take the CEM exam. AEE will administer the CEM exam on the afternoon of the final day of the five-day seminar program. Those wishing to sit for the exam at that time must submit a separate application to AEE's Certification Administrator in advance of the deadline specified below. For further information on the CEM program, or to receive an application, please visit our website at www.aeecenter.org/certification, or contact:

Certification Administrator
 Association of Energy Engineers
 4025 Pleasantdale Road, Suite 420
 Atlanta, GA 30340
 Phone: (770) 447-5083 Ext. 310

(Send completed form to: cttc@arkansasashrae.org or fax to (501) - 661-9109)

CEM Course Registration

Sign up for:

<input type="checkbox"/> 4-day seminar	\$1085
<input type="checkbox"/> Exam (please note requirements to sit for exam)	included
<input type="checkbox"/> Energy Management Handbook	\$235
<input checked="" type="checkbox"/> EEA Sponsorship	-\$543
Total	_____

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____

Email _____

Method of Payment

Check Bill Me
 Checks should be made out to **Arkansas ASHRAE**
 Please mail payment to: **ASHRAE, PO BOX 1081, Little Rock, AR 72203**

Signature _____

(Send completed form to: cttc@arkansasashrae.org or fax to (501) - 661-9109)

AEE requires each C.E.M. candidate to meet one of the following criteria:

- A four-year engineering degree and/or P.E., with at least three years experience in energy engineering or energy management.
- A four-year business or related degree, with at least five years experience in energy engineering or energy management.
- A two-year technical degree, with eight years experience in energy engineering or energy management.
- Ten years or more verified experience in energy engineering or energy management.

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Continuing Education

Submitted By Chris Ahne — CTTC Chair

A total course* that teaches what it takes to significantly cut costs!



The ideal course for any professional seeking...

- To become a good (or better) energy manager.
- To take and pass the CEM exam.
- To know what energy management can do for their company
- To know what to expect from energy management consultants.

CONSIDER THESE IMPORTANT BENEFITS...

- ◆ Teaches you energy management technologies and how to successfully apply them in your building or plant.
- ◆ Provides new energy managers and facility managers with the in-depth training they need to minimize energy costs and improve energy efficiency.
- ◆ Covers each topic in sufficient detail so that you are ready to apply new ideas and approaches when you finish the course.
- ◆ Presents topics initially in an introductory manner, but rather than proceeding as a review, quickly builds to a working level that incorporates practical applications.
- ◆ Shows the benefits of energy management and how to perform all the calculations needed to understand and control energy costs in buildings and other facilities.
- ◆ Explains thoroughly the steps in an energy audit or energy survey, and shows how those steps accomplish the overall goal of reducing energy costs.
- ◆ Offers a hands-on explanation of energy audit instrumentation, and lets you see some of the equipment, meters, and measuring devices that are used to collect data.
- ◆ Teaches you why utilities want to help their customers save money on their energy bills and become more energy-efficient.
- ◆ Unravels the maze of buzzwords on energy codes and standards — explains NECPA, PURPA, NGPA, ICP, ASHRAE, CFCs, CAAA of 1990, and NEPA of 1992.
- ◆ Increases your understanding of the major energy-consuming systems in buildings, and shows how the building envelope affects building energy use.
- ◆ Reveals how energy is used in your building; how that compares to other buildings.
- ◆ Covers the various factors that are involved in energy rate structures, and how that knowledge can help you save money.
- ◆ Devotes enough time to electric rate structures to assure you fully understand how they work, and how you can change equipment, processes, and operating procedures to keep electric costs to a minimum.
- ◆ Covers economic decision measures thoroughly, then proceeds step-by-step through the development of present values and present worth of discounted cash flows.
- ◆ Explains fully the various ways to perform life cycle costing.
- ◆ Teaches you how to evaluate alternative fuel choices and how to capitalize on the benefits of deregulation of gas supply and electric power generation.
- ◆ Focuses on electrical peak demand control and how much that can save your facility.
- ◆ Examines new lighting technologies to discover what changes can dramatically.
- ◆ lower your electric costs — usually with an incentive from your electric utility.
- ◆ Reveals why motors probably use over half the electric energy in your facility, and how you can cut those costs with high-efficiency motors and adjustable speed drives.
- ◆ Assures that you understand the basic air conditioning cycle, as well as how to reduce air conditioning costs by using better controls, more efficient equipment, and new technologies like heat pipes and thermal storage.
- ◆ Makes sure you have a thorough understanding of how boilers, furnaces, and heaters work, and the steps you can take to improve their efficiencies.
- ◆ Teaches you what cogeneration really is and where it could help you provide low cost heat and electric power.
- ◆ Puts all of the pieces together, enabling you to identify and integrate real opportunities to use new equipment, new operating procedures, and new processes to significantly improve energy efficiency and reduce energy costs.