



The Razorback Report

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

www.arkansasashrae.org

Volume XVII, Issue 7, March 2006

The President's Message

By Chance Hollingsworth

Special Thanks to our chapter's refrigeration chair - Miguel Purdy for his work in arranging the February meeting on refrigeration featuring a program on "ASHRAE Standard 15 and Machinery Rooms". Great job Miguel!

Our Chapter Technology Transfer Chair - John Hodoway and Continuing Education Subcommittee Chair - Tom Hanlon have set up several very good educational opportunities for our membership. February 28th - "Designing for Occupant Acceptance"; April 19, 2006 - Satellite Broadcast and Webcast, "Sustainability and the Building Environment"; May 18th - "Steam Seminar" For registration and seminar details visit our website at www.arkansasashrae.org.

In keeping with ASHRAE's Vision to be the global leader in the arts and sciences of heating, ventilation, air conditioning and refrigeration. We the members of ASHRAE are called on to be the foremost source of technical and educational information, standards and guidelines. For Arkansas ASHRAE we have been called on to provide speakers and presenters for AAHE - "40th Annual Meeting & Product Show - April & USGBC- "Sustainable Arkansas 2006" - May. If you are interested in being a speaker or presenter on behalf of ASHRAE please Email me at chanceh@powersar.com

MARCH MEETINGS

Northwest Arkansas

Date: Thursday, March 2nd
Location: AQ Chicken, Springdale, AR
Schedule: 5:30 - Social
6:00 - ASHRAE Business / Dinner
6:45 - Program - "Emerging Wireless Technologies in Building Controls" - Jeff Raimo
Cost: \$10.97 / person

Central Arkansas

Date: Wednesday, March 1st
Location: Whole Hog Café
Schedule: 10:30 - Board Meeting
11:30 - Tech Session - "Research Promotion Report" - John Carter
12:15 - Program - "Emerging Wireless Technologies in Building Controls" - Jeff Raimo
Cost: \$15.00 / person

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- "Designing for Occupant Acceptance" - 2/28	

Reminder the deadline for submitting Chapter Technology Award applications to the chapter is March 15th. Please contact John Hodoway for more information on available awards and award criteria.

I hope to see you all for our March meeting. Our program will provide an overview of some of the emerging wireless technologies being integrated into building controls today. The presenter will be Jeff Ramio, his article titled "Wireless Mesh Networks Using HVAC Controllers" was published in the July 2005 ASHRAE Journal, Vol. 47, No. 7.

HAPPY ST. PATRICK'S DAY

DID YOU KNOW THAT ST. PATRICK IS
THE PATRON SAINT OF ENGINEERS?

February Chapter Minutes

Submitted by Kimberly Koch, PE, Secretary

Board Meeting of February 1, 2006

Officers and Board Members Present

Chance Hollingsworth, President

John Hodoway, VP, Programs Chair, Chapter Technology Chair

Kim Koch, Secretary

Rick Sellers, CRC Delegate, Honors & Awards Chair

Terry Granderson, BOG

Committee Chairs Present

James Panasiuk, Social Chair

Ashley Roach, Reception Chair

Bill Simpson, Webmaster

Chris Ahne, Newsletter

Wade Wetzler, Publicity

Meeting Minutes

Old Business

President Chance Hollingsworth called the meeting to order at the Whole Hog Café.

President Chance Hollingsworth reviewed the proposed changes to the Chapter bylaws that were published in the last Razorback report. There were no additional changes proposed by board members or committee chairs. It was decided that the changes would be presented to the chapter membership for approval during the membership meeting.

New Business

President Chance Hollingsworth updated the board on items discussed at the President Elect Training. Chance and John Hodoway attended the training.

Chance reported on two changes to Research Promotion. Society will now distribute donor recognition coins and plaques. Donors will still be recognized at the local level during the Research Promotion meeting. In addition, the minimum PAOE point to attain PAR has increased significantly from 850 points to 1050 points.

Chance reported that other chapters have had success selling flag stick advertising or sponsorship during their gold tournaments. Social chair James Panasiuk volunteered to investigate the possibility of implementing this at the spring golf tournament.

Chance reported that Bill Goodman's name was brought forward as a possible nominee for the Honors and Awards Committee.

Chance reported that there were currently no entries for the Milton Garland Award and only one entry for the Comfort Cooling Award. These awards must be submitted to the chapter first. It was decided to set a chapter deadline for applications of March 15th. Qualifying project must have been in operation for at least one year but no longer

than three years.

John Hodoway reported that next month's program would be at the Whole Hog Café and would cover wireless controls systems. John reported that 36 members had RSVP'd for the February meeting.

John Hodoway reported that there is a four hour continuing education seminar on February 28th. There are 30 seats available and the cost is \$25/person. He stated he would forward all information to Bill Simpson for inclusion on the website. John also stated there would be a continuing education seminar on steam systems on May 18th. The site for the seminar has not been determined yet and more details will follow in the coming months.

Secretary Kim Koch presented the January meeting minutes for approval. Rick Sellers stated the number of guests should be amended to 22 to reflect the CSI members in attendance. Rick Sellers motioned the minutes be approved as amended. Chris Ahne made a second to the motion. The motion passed by acclamation.

Newsletter editor Chris Ahne assigned the next newsletter deadline as Monday February 20th. He requested articles from all present.

Refrigeration Chair Miguel Purdy explained the refrigeration awards in more detail. There was discussion concerning what possible projects for nomination and how the nomination process works.

President Chance Hollingsworth volunteered to contact Drew Harrison to receive an update on Student Activities and E-week.

Rick Sellers volunteered to distribute the delinquency list to the board to help identify delinquent members within their workplace.

Honors & Awards Chair Rick Sellers volunteered to investigate the ALCO Medal for outstanding public service.

Social chair James Panasiuk reported the spring golf tournament would be May 19th. Several courses were suggested as possible venues.

Publicity chair Wade Wetzler reported current status of CRC plans. There was discussion of looking into any group rates for airlines. Chris Ahne suggested Wade contact a travel agent to see if any discounts were available.

The meeting was adjourned.

Membership Meeting of February 1, 2006

39 Members, 4 Guests

Meeting Minutes

President Chance Hollingsworth called the meeting to order at the Whole Hog Café.

President Chance Hollingsworth introduced Miguel Purdy to present the technical session concerning guide-

(Continued on page 3)

Chapter Minutes

(Continued from page 2)

lines for refrigeration awards. Miguel is the Refrigeration committee chair for the Arkansas chapter.

Miguel explained there are two main awards in the Refrigeration category. The Milton W. Garland Refrigeration award is given to projects involving non-comfort cooling. The application form for this award is six pages.

The Refrigeration Comfort Cooling award is given to projects involving large comfort cooling plants consisting of 300 tons of cooling or more. The application form for this award is four pages.

In each category the project must have been in operation for a least one year but less than three years. The deadline for submitting applications to Miguel or Chance Hollingsworth is March 15th.

President Chance Hollingsworth explained the role of the nominating committee. A motion was made to accept the following members as representatives to the nominating committee:

- Paul Briscoe
- Mike McClellan
- Hank Wade
- Sam Cummings
- Jim Monk

The motion passed by acclamation.

President Chance Hollingsworth reviewed the proposed changes to the bylaws that were published in the February newsletter. A motion was made to accept all proposed changes to the bylaws. The motion passed by acclamation.

President Chance Hollingsworth announced the upcoming educational seminar on "Designing for Occupant Acceptance." The program will be held at Cromwell on Tuesday, February 28, 2006. The registration fee is \$25.00. Registrations can be found on the Arkansas ASHRAE website.

Refrigeration Chair Miguel Purdy introduced Chris Harmon with Industrial Consultants to present the program on "ASHRAE 15 and the Machinery Room."

Chris began with a short history of ASHRAE 15. In 1919, the American Society of Refrigerating Engineers proposed a Tentative Code for the Regulation of Refrigerating Machines and Refrigerants. Many organizations have been involved with the evolution of the document to today's ANSI/ASHRAE 15-2004/

Chris explained that ASHRAE 15 defines a Machinery Room as: "A space, meeting the requirements of 8.11 and 8.12, that is designed to house compressors and pressure vessels."

Chris explained several of the general requirements for mechanical rooms. A few of the topics Chris covered include:

8.11.2 Each refrigerating machinery room shall have a tight-fitting door or doors opening outward, self-closing if they open into the building, and adequate in number to ensure freedom for persons to escape in emergency.

8.11.2.1 Each machinery room shall contain a detector, located in an area where refrigerant from a leak will concentrate, that actuates an alarm and mechanical ventilation at a value not greater than the corresponding TLV-TWA (or toxicity measure consistent therewith).

8.11.3 Machinery rooms shall be vented to the outdoors, utilizing mechanical ventilation in accordance with 8.11.4 and 8.11.5

8.11.6 No open flames that use combustion air from the machinery room shall be installed where any refrigerant is used.

8.11.8 Access to the refrigerating machinery room shall be restricted to authorized personnel. Doors shall be clearly marked or permanent signs shall be posted at each entrance to indicate this restriction.

Chris summarized some special case requirements and exceptions to requirements and then ended by taking questions from the members. A copy of Chris's PowerPoint presentation is located on the Arkansas ASHRAE website.

President Chance Hollingsworth thanked both presenters and all members for attending and welcomed all to the meeting next month covering wireless control systems.

Been involved with ASHRAE so much that you may qualify for a Distinguished Service Award but can't remember? Keep track of your ASHRAE service history years down the road by recording your activity today on the Biographical Record System at the following URL. <http://xp20.ashrae.org/bio/>

Research Promotion

Submitted by John Carter, PE, - Research Promotion Chair

Consider Endowing your Research Contribution through the ASHRAE Foundation

The theme of the March Chapter meeting is "Research Promotion". In fact, in the Central Arkansas meeting, we will have a special guest, John Rhodes, who will give us an update on Society level Research activities in our technical session. John is the current Region VIII Vice-Chairman for Research Promotion and we look forward to hosting him at our chapter meeting.

Last month, we looked at the ASHRAE Learning Institute as a way to direct your research monies. This month, let's look at the ASHRAE Foundation as a second way you can designate your Research contribution. The ASHRAE Foundation is an endowment that was formed to ensure that ASHRAE will have sufficient financial resources to sustain and expand the Society's important work into its second century." Spoken another way, the ASHRAE Foundation was formed to accept and recognize current gifts of cash as well as pledges completed over multiple years. It also provides gift planning services to Society members who may wish to make deferred contributions through bequests in their wills, beneficiary designations in trust agreements and life insurance policies, or through the purchase of annual gift annuities.

The ASHRAE Foundation is a qualified, tax-exempt organization under IRS Code 501(c)(3), and contributions to the Foundation are, of course, tax deductible. Use the below guideline to determine how much you want to endow:

The minimum annual contribution the Foundation will endow is \$100 for members and \$150 for companies.

To endow an annual contribution divide the desired annual payout by 5%. For example, if a donor wishes to endow a \$100 annual contribution, divide \$100 by 5%. This will provide the endowed contribution required (\$2,000) to initiate the donor's endowment fund.

It takes a year for the endowment fund to accumulate the earnings

If you or someone you know isn't receiving the electronic version of the **Razorback Report** and would like to, please send an email to cahne@trane.com.

The Cooler Side of Engineering

Submitted by Miguel Purdy - Refrigeration Chair

As you may or (heaven forbid) may not remember, there have been two refrigeration articles written in this newsletter over the past this year. The first was about the Milton W. Garland Commemorative Refrigeration Award for Project Excellence. The second was on the Refrigeration Comfort Cooling Award for Project Excellence. The Garland Award has been around for several years. It awarded to both the designer and owner of a non-comfort cooling refrigeration application that incorporates new technology in a unique manner. At the last word the chapter received there had been no entrants for this award.

This is the inaugural for the Comfort Cooling Award. This award is also presented to both the designer and owner. It is designed to highlight a comfort cooling application that is at least 300 tons and utilizes innovative and/or new technologies. Thus far there has only been one applicant for this award.

Each of these awards requires that a project be in operation at least twelve months, but less than 36 months. All awards applicants must submit their six-page entry to the Chapter for review. The Chapter then makes the final submissions to CRC.

Arkansas ASHRAE has set this year's deadline for application of March 15, 2006. If you have a project that you believe is worthy of consideration, please contact Miguel Purdy at mlpurdy@vcaw.com or (479)756-0007 to obtain submission requirements, assistance in preparation and/or final submission information.

Webmaster Report

Submitted by Bill Simpson - Chapter Webmaster

The number one goal of the Arkansas ASHRAE website is to serve the needs of the chapter members. Significant time and effort has been invested this year in improving our website to do just that. In addition to getting a bit of a facelift, lots of features have been added so that the website is more functional. Did you know you can download meeting notes including tech session and program speaker slides from the site? A new feature this month is the online RSVP form for monthly chapter meetings. The website is now updated at least twice per month, so the calendar and newsletter is always up-to-date. Also, we now have a new pop-up feature to tell you what has been updated on the website over the past couple months. For those of you who don't like navigating the society site, there are simple links to pay your dues, contribute to ASHRAE research, or update your ASHRAE bio all at ArkansasASHRAE.org. The website exists for you. If there is something you'd like to see added or changed, please tell us. Visit ArkansasASHRAE.org regularly to stay on top of what's going on with our chapter!

18 Things you can do from ArkansasASHRAE.org:

1. RSVP to monthly chapter meetings
2. View current calendar
3. Pay your dues
4. Contribute to ASHRAE Research
5. Download tech session and program speaker slides
6. Update your ASHRAE Bio
7. Find information on chapter events (continuing education seminars, chapter golf tournaments, etc.)
8. View the Arkansas ASHRAE Photo Album
9. Download current newsletters and archived newsletters dating as far back as 2001
10. View local Research Promotion contributors and society Honor Roll
11. Find information about CRC
12. Find links to related organizations, Society, Region VIII, and other chapters in our region
13. Read current President's Message
14. Post and view resumes/help wanted ads
15. View Arkansas ASHRAE leadership and e-mail addresses
16. View Chapter History (Honors and Awards and Past Presidents)
17. Get info on ASHRAE scholarships and student design competitions
18. Look up accredited university engineering programs

The screenshot displays the Arkansas ASHRAE website in a Microsoft Internet Explorer browser window. The main content area features a calendar for March 2006 and April 2006. The April calendar includes a highlighted date for the 3rd, which corresponds to the 'Past Presidents' Night-Regional Chair' event. To the right of the calendar is a 'What's New' section with the Arkansas ASHRAE logo and the text 'What's New @ ArkansasASHRAE.org'. This section lists recent updates: a new RSVP form for monthly chapter meetings (February 20, 2006), a new Research Promotion page with a list of local contributors and society Honor Roll (February 13, 2006), and a new up-to-date calendar (February 11, 2006). The website also features a navigation bar with links to Home, Previous Month, Current Month, and Next Month.

Sun	Mon	Tue
5		
12		
19		
26		
	2	3
	9	10
	16	17
	23	24
	30	

Region VIII CRC (cont'd)

What's New @ ArkansasASHRAE.org

February 20, 2006 Now you can [RSVP](#) to our monthly chapter meetings on our website.

February 13, 2006 Added a [Research Promotion](#) page and posted a list of local contributors and society Honor Roll.

February 11, 2006 Check out the new up-to-date [calendar](#). Lots of important links added on the [Student Activities](#) page.

Continuing Ed News: "Steamy Event"

Submitted by Tom Hanlon

Our spring Continuing Ed event is a six hour seminar covering steam system design and maintenance.

Will be presented by Mr. Roy Ahlgren (ITT Industries) director and primary instructor of Bell & Gossett's "Little Red Schoolhouse". Roy is a graduate of the U.S. Naval Academy with a degree in Naval Science, and the Illinois Institute of Technology, with a Master's Degree in Management. All that have been to the "Schoolhouse" or have attended one of his seminars can speak to his quality programs. Want to thank Larry Romie (Johnson & Scott) for arranging this great speaker.

Our seminar is being hosted by UAMS and the Physical Plant Department. In advance, want to thank Plant Director Mary Jo Ring P.E. and her staff for their participation.

Date is Thursday May 18th. We'll start @ 8:00 AM with registration and continental breakfast. Program will start at 8:30 AM, break for lunch at 12:00, pick up at 1:00 PM and finish around 4:00 PM.

Location @ UAMS is presently being determined and will be announced with the registration flyer. Cost for the seminar will be determined @ the March Board Meeting.

Subjects will be:

Introduction and definitions. The development of low pressure steam heating systems.

Steam boiler basics, fundamentals of boiler level controls; feeders and pump controls.

Steam regulators. Operation and troubleshooting temperature and pressure regulators.

Steam heat exchangers. Typical damage mechanisms and how to prevent them.

Steam trap types, operation, how they prevent heat exchanger damage. Trap testing.

Condensate handling equipment. Pump basics, types of pumping equipment, troubleshooting common pump problems.

Should be a great Seminar so plan to attend.

NW Section Update

Submitted by Shawn Wilson, PE, - NW Section Chair

February 2nd, the Northwest Section met at the Catfish Hole in Fayetteville. Chris Harmon of Industrial Consultants educated those of us in attendance on machinery room safety requirements. Kudos to Chris and Miguel Purdy of VCP&A (our refrigeration chair) for a great program. Thanks to the 28 members and 5 guests that attended.

For our March meeting will be back at AQ Chicken in Springdale on Thursday March 2nd. Social begins at 5:30 pm. Jeff Raimo of Siemens will present "Emerging Wireless Technologies in Building Controls". You may recognize Jeff's name or the program topic from his recent article on this subject in the ASHRAE journal. Make plans to join us.

Also, note that our spring ASHRAE golf tournament is coming up soon (end of April). Look for details in the announcements at our upcoming meeting.

Thanks as always for your continued support and GO HOGS!

Editor's Note

Submitted by Chris Ahne - Newsletter Editor

I spent some additional time this month highlighting a few new items that are available from ASHRAE. A major strength of our organization is the resources we have available for continued learning. The online continuing education seminars will give consulting engineers the opportunity to earn additional PDHs. For members trying to get a better handle on the fundamentals of our business the eLearning system will help solidify your knowledge base.

Because this newsletter is aimed at informing our valued members, I am always open to new ideas or suggestions. Your comments will be greatly appreciated. You can reach me by email at cahne@trane.com.



Chapter President Chance Hollingsworth addresses the membership at the February chapter meeting.



ATU Student Chapter Advisor, Wayne Helmer, introduces student member, Matt Whitfield at the February chapter meeting.

New Items Available from ASHRAE

Spring Online Seminar Series from the ASHRAE Learning Institute - Key ASHRAE seminars are now available online. Earn your continuing education credits at your computer. A live instructor leads the class and answers your questions in real time. Upon completion of each course, you will earn 3 PDHs/.3 CEUs or 3 AIA Learning Units (LUs). For more information and to register, visit www.ashrae.org/onlinepds or contact the ASHRAE Learning Institute at (404) 636-8400, or edu@ashrae.org. The following seminars are available on each Wednesday during the upcoming months:

- Complying with ASHRAE Standard 90.1-2004 HVAC/Mechanical Wednesday, 03/15/2006 – 1 to 4 p.m. EST
- Complying with Requirements of ASHRAE Standard 62.1-2004 Wednesday, 03/22/2006 – 1 to 4 p.m. EST
- Humidity Control I - Basic Principles, Loads and Equipment Wednesday, 03/29/2006 – 1 to 4 p.m. EST
- Humidity Control II - Applications, Control Levels and Mold Avoidance Wednesday, 04/05/2006 – 1 to 4 p.m. EDT
- An Introduction to BACnet® Wednesday, April 12, 2006 – 1:00 p.m. to 4:00 p.m. EDT
- Life-Cycle Cost Analysis Wednesday, April 26, 2006 – 1:00 p.m. to 4:00 p.m. EDT

ASHRAE eLearning - A revolution in training and education for the HVAC&R Industry - Start immediately, work anytime and at your own pace to earn PDHs / CEUs on your desktop. You can sign up for the eLearning system or view a demo at www.ashrae-elearning.org.

Launching April 2006 the First ASHRAE eLearning System - Fundamentals of HVAC Systems A thorough and comprehensive introduction to how HVAC systems function in controlling temperature, air quality, and air circulation in a conditioned space.

Earn CEUs, and boost your skills at your desktop with the:

- On-demand, interactive online course
- Hardbound and online course reference book
- 3 Learning Burst simulation exercises
- Online self-assessment
- Completion certificate for PDH and CEU credits



Future ASHRAE Meetings:

2006 Region VIII CRC
April 27-30
Cancun, Mexico

2006 ASHRAE Summer Meeting
June 24 - 28
Quebec, PQ

2007 ASHRAE Winter Meeting
January 27 - 31
Dallas, TX

2007 ASHRAE Summer Meeting
June 23—June 27
Long Beach, CA

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2005-2006 Chapter Officers

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<u>Treasurer</u>	Steve Titus	501.375.1181	sctitus@aristotle.net
<u>Secretary</u>	Kim Koch	501.666.6776	KKoch@tmecorp.com

Board of Governors

Terry Granderson	501-682-4261	tgranderson@arkedu.k12.ar.us
Alan Hope	501-374-5420	ahope@powersofarkansas.com
John Oliver	501-280-0404	joliver@airetechcorp.com
Rick Sellers (CRC Delegate)	501-374-3731	rsellers@pettitinc.com
John Carter (CRC Alternate)	501-666-5463	john@jcarterco.com

Committee Chairs

Membership	James Dayer	jdayer@fluidsolutionsinc.com
Student Activities	Drew Harrison	dharrison@trane.com
Programs	John Hodoway	john.hodoway@mail.ashrae.org
Historian	Tracy Hayes	hayes.tracy@sbcglobal.net
Refrigeration	Miguel Purdy	mlpurdy@vcaw.com
Research	John Carter	john@jcarterco.com
Honors & Awards	Rick Sellers	rsellers@pettitinc.com
TEGA	John Hodoway	john.hodoway@mail.ashrae.org
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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: _____

For reservations to the Central Arkansas Chapter meeting send this form by
Monday, February 30th to **John Hodoway** : john.hodoway@mail.ashrae.org or via
FAX at 501-372-0482.

For reservations to the Northwest Arkansas Chapter meeting send this form by
Tuesday, February 31st to **Shawn Wilson** : swilson@powersar.com or via **FAX** at
501-370-9298.

ROUTING

MEMBER NAME (PLEASE PRINT)	CENTRAL March 1st	NW ARK March 2nd	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 March meeting online at www.arkansasashrae.org

"Emerging Wireless Technologies in Building Controls"

This presentation will provide an overview of some of the emerging wireless technologies being integrated into building controls today. The presentation will focus on new wireless mesh network technology and provide some examples of real projects that have used controls utilizing this technology.

Presenter Bio

Jeff Raimo is a product manager at Siemens Building Technologies where he is involved in the integration of wireless technologies into Siemens' building automation system. Jeff has previously held various product development positions within Siemens and the semiconductor industry.

Jeff has authored various articles on emerging wireless technologies some of which most recently appeared in the ASHRAE Journal, Buildings, and HPAC.

He has an MBA and Aerospace Engineering degree both from the University of Illinois and after college spent seven years in the Navy as a nuclear-trained officer.

ASHRAE EDUCATIONAL SEMINAR
TUESDAY – FEBRUARY 28, 2006
12:00(Noon). – 4:00 P.M. (4 PDH's)
Cromwell A/E 2nd Floor Meeting Room
101 South Spring Street
Little Rock, Arkansas

“Designing for Occupant Acceptance”

In order to meet the increased expectations of building occupants, designers must be aware of the conflicts between first cost economics, occupant productivity and life cycle costs. Buildings that do not meet the needs of the occupants often result in expensive redesign or worse, result in lawsuits against all parties involved. Recent court cases make it imperative that designers understand the changing 'rules' of the road.

Subjects:

1. Air Distribution: Selecting components and system parameters for effective air mixing. New requirements need to be understood.
2. Thermal Comfort: Determining optimum occupant comfort strategies. ASHRAE Standard 55 has been revised.
3. Acoustics: Accurately predicting end use environments. A new classroom acoustical requirement needs to be understood.
4. IAQ: The changing face of ASHRAE Standard 62, and upcoming developments.

2005 - 2006 ASHRAE Distinguished Lecturer

Mr. Dan Int-Hout, Chief Engineer, Krueger, is responsible for the presentation of technical data and advanced application engineering for the Grilles, Registers and Diffusers, as well as the VAV air terminals, produced by Krueger. Mr. Int-Hout originally joined Krueger in 1981, but has had several other jobs in the industry, in engineering, marketing and product research roles, with Owens Corning Fiberglas, Carrier, Titus and Environmental Technologies. Mr. Int-Hout has been in the air distribution research and design business since 1973, has a Masters degree in Business Management from Central Michigan University, and a Bachelors degree in Biology and Physics from Denison University.

Mr. Int-Hout has written over thirty technical papers and articles on VAV system performance, acoustics, air diffusion, controls and occupant comfort. He was recently Chairman of both ASHRAE Technical and Standards Committees on Thermal Comfort, is a past Chairman of several other related ASHRAE Technical and Standards Committees, as well as ASHRAE Standards and Environmental Health Committees. He received the ASHRAE Distinguished Service Award in 1993. He is currently the Chairman of the ARI Committee on Applied Acoustics (885) and Chair of ISO 205 U.S. Panel on Thermal Comfort. He is presently a member of the ASHRAE Technical Activities Committee (TAC).

COMPLETE & FAX REGISTRATION TO (501-370-9298)

NAME: _____

FIRM: _____

ADDRESS: _____

PHONE: _____ FAX: _____

EMAIL: _____

REGISTRATION FEE – \$ 25.00 PER PERSON

(BOX LUNCH INCLUDED IN FEE)

Parking is available in the Parking Deck

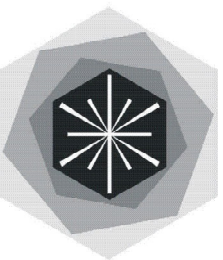
Fundamentals of HVAC&R Series

Self-directed learning courses allow you to explore a comprehensive curriculum covering the fundamentals of the HVAC&R industry.



**Some of the topics include the
Fundamentals of:**

- HVAC Systems
- HVAC Control Systems
- Heating and Cooling Loads
- Air System Design
- Water System Design
- Heating Systems
- Refrigeration
- Thermodynamics
- Psychrometrics



ASHRAE
LEARNING*INSTITUTE

"Today's environmental issues demand highly skilled employees who understand the new technologies revolutionizing the HVAC&R industry"



The ASHRAE Learning Institute is not a building or a structure of bricks and mortar. Rather, the ASHRAE Learning Institute is built upon an educational and training foundation laid by the HVAC&R industry's leading educators and practitioners. In order to meet the needs of the engineer in this current "information age" the Institute draws upon the worldwide resources of ASHRAE, the industry's source for research, standards and reference publications.

