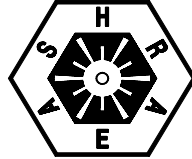


# THE BADGERAIRE

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS, INC.



## October 20, 2011 Program: Acoustic Best Practices for the HVAC Engineer

Come join us for a discussion about acoustics as it relates to HVAC Engineering. This discussion will cover:

- A brief overview of terminology
- Answer 4 questions for acoustic design
  1. Where are we now?
  2. Where do we need to be?
  3. What needs to be done to get there?
  4. How much will it cost?
- Define the “low hanging fruit” of acoustical problems and recognize when an in depth review is necessary
- Assess Ambient noise levels
- Evaluate airborne and structure-borne transmission

The 1 hour presentation will start at 12:00 noon at Joey Buona’s Restaurant 500 North Water St. Milwaukee, WI 53202. Registration will begin at 11:30am.

Our guest speaker will be Kristan (Kris) G. Kollevoll, President of BRD Noise and Vibration Control, Inc. is a graduate of Princeton University. Kris started with BRD as a Sales Engineer in 1982 and became Sales Manager and Vice-President in 1988.

In 1994, upon the death of Bernard R. Deschaine, founder of the company, Kris became President and added several new Sales Engineers to BRD’s staff. Additional Regional Offices have been opened in the Midwest, Southwest and Southern States and plans are underway for other offices in the New England and West Coast areas as well.

Kris is affiliated with the Acoustical Society of America and Institute of Noise Control Engineering and has also served as an outside consultant for the training of OSHA Citation Officers.

Kris has worked extensively to aid such prominent companies as DuPont, Alcoa, Johnson & Johnson, Hewlett Packard, Proctor & Gamble, as well as a long list of HVAC OEMs in designing and manufacturing long-term engineered noise control solutions.

Around 1988, Kris formed a separate HVAC Division within BRD to focus on developing proven solutions for recurring noise problems. BRD is a recognized leader in the field of noise reduction systems for air cooled and liquid chillers and for curb mounted rooftop packaged air conditioning equipment.

BRD is a frequent presenter at ASHRAE Chapter meetings.

Make your reservations at: <http://www.ashrae-wi.org/reservations.html>



## President's Column

The ASHRAE season is underway, and picking up speed. Our first meeting was held at Aliotos, and was well attended with over 30 members attending. The topic was Fan Wall Technology and Variable Frequency Best Practices, given by Mark Montensanto, National Sales Manager for HUNTAIR. He discussed ways to reduce energy consumption, air handler footprint and sound transmission, and really engaged the crowd.

I want to thank the attendees for making the meeting, and ask you to get more of your peers to attend.

I also want to thank Vyron for sponsoring the table top for Research Promotion.

Our next meeting will be October 20<sup>th</sup>, at Joey Buona's for lunch, and the topic should be a good one. Kristan Kollevoll will present on Acoustic Best Practices for the HVAC Engineer, covering the terminology, the four main questions for acoustic design, define the low hanging fruit, and evaluating airborne and structural transmission.

There are also several other great programs set up for November, December and January, so please check out the website to see what is coming. Also don't forget that we are having a Holiday party in December – watch for the details!!!

If you have any questions, comments or concerns, please do not ever hesitate to contact me or any of the Board Members.

Best Regards,

Justin Patrick  
President, ASHRAE - Wisconsin Chapter  
[justin.k.patrick@jci.com](mailto:justin.k.patrick@jci.com)  
414-524-7198

## ASHRAE Technology Awards

Each year, our WI ASHRAE chapter offers consideration for technology award for projects in our area that exhibit energy efficiency in buildings and environmental system performance. Some years our chapter will receive some, some years we don't receive ANY! We are once again accepting submissions for chapter level consideration. We recommend using the Short Form Application, which is only 1 page. A sample of one is included in this newsletter. Applications are available online at <http://www.ashrae.org/members/page/1646>, or by request from Aaron Ting at [aaron.ting@auersteel.com](mailto:aaron.ting@auersteel.com). Applications are due before March 1<sup>st</sup>, 2012. Good Luck!



**ASHRAE**  
**CHAPTER/REGIONAL TECHNOLOGY AWARD APPLICATION**  
**SHORT FORM**

**(Revised June 2011)**

**INTRODUCTION:**

*This Short Form has been developed to stimulate more participation in chapter and regional competition. **This form is not intended to replace the full Society Technology Award Application form.** Regional winners using the short form will be required to complete the full Technology Award Application form before their applications can be forwarded for Society Competition. (This form does not require extensive narrative, plans or photographs.)*

**INSTRUCTIONS:**

- A. The individual submitting the Technology Award Application must be a current member of ASHRAE who had a significant role in the design or development of the project.
- B. Complete the "Short Form" and use it as the cover page.
- C. Provide a system schematic/diagram not larger than 11" x 17" in size. In addition, attach a brief narrative (maximum of 2 pages). The narrative should include the gross and net building areas applicable to the project, a description of the major building areas (i.e., operating rooms, laboratories, computer rooms, industrial processes, offices, warehouses) and a brief discussion regarding the following five criteria (if a criterion is not applicable, state accordingly):
  - Energy Efficiency
  - Indoor Air Quality
  - Innovation
  - Operation & Maintenance
  - Cost Effectiveness
  - Environmental Impact
- D. Submit your schematic, brief narrative, and completed form to your Chapter Technology Committee Chapter (CTTC) Chair for judging at the chapter level in accordance with their instructions.
- E.

The ASHRAE Technology Award program is intended for built projects. First place winning projects should be eligible for submission to the Society level competition on September 1<sup>st</sup> of the following Society calendar year. Therefore, a project submitted to a Chapter or Regional competition shall be occupied prior to September 1<sup>st</sup> of the current Society year in order to satisfy the preceding Society level competition requirement of one full year of occupancy.

First place winners in each category from chapter competition will be submitted by the CTTC Chapter Chair to the CTTC Regional Vice Chair for judging in the Regional Technology Awards competition. At the discretion of the CTTC Regional Vice Chair, this may require completion of the full Society Technology Award Application form if the chapter submission was done on the Short Form Application.

The CTTC Regional Vice Chair will invite first place winners in each category from regional competition to submit them for judging in the Society level Technology Awards competition. The regional winners will be given the opportunity to incorporate new information or otherwise improve their submittal before submitting it to the society level competition (e.g., by addressing comments from regional judges). At the discretion of the judging panels at the chapter and regional competitions, more than one first place winner may be awarded in each category.

For the regional competition, submit the number of copies requested by the Regional CTTC Vice Chair. The CTTC Regional Vice Chair may require entries into the regional competition to be done on the full Society Technology Award Application form. In any case, all submissions to the Society level competition must be done on the full Society Technology Award Application form.

- F. It is highly recommended that each entrant confirm by letter (and retain a copy for record) to the owner that the owner has granted permission to submit this project to competition.

NOTE: ASHRAE Technology Awards are the HVAC&R industry's most prestigious honor for efficient energy use in buildings and environmental system performance. While the awards do not certify responsible charge or professional license status, they do recognize outstanding design innovation and successful implementation.

# CHAPTER/REGIONAL TECHNOLOGY AWARD - SHORT FORM

**1. Category (Check one and indicate New or Existing, if applicable)**

Commercial Buildings  New or  Existing

Institutional Buildings:

Educational Facilities  New or  Existing

Other Institutional  New or  Existing

Health Care Facilities  New or  Existing

Industrial Facilities or Processes  New or  Existing

Public Assembly  New or  Existing

Residential (Single and Multi-Family)

**2. Name of building or project:** \_\_\_\_\_

City/State: \_\_\_\_\_

**3. Project Description:** \_\_\_\_\_

Project Study/Design Period: \_\_\_\_\_

Percent Occupancy at time of submission: \_\_\_\_\_

**4. Entrant (ASHRAE member with significant role in project):**

a. Name: \_\_\_\_\_  
Last First Middle

Membership Number: \_\_\_\_\_

Chapter: \_\_\_\_\_

Region: \_\_\_\_\_

b. Address (including country): \_\_\_\_\_

City State Zip Country

c. Telephone: (O) \_\_\_\_\_ d. Email: \_\_\_\_\_

e. Entrant's Role in Project: \_\_\_\_\_

f. Member's Role in Project: \_\_\_\_\_

g. Member's Signature: \_\_\_\_\_

**5. Engineer of Record:** \_\_\_\_\_

By affixing my signature above, I certify that the information contained in this application is accurate to the best of my knowledge. In addition, I certify that I have discussed this entry with the owner and have received permission from the owner to submit this project to the ASHRAE Technology Awards Competition.

## **WHAT DOES ASHRAE RESEARCH DO FOR YOU PERSONALLY?**

There was a time when most people relied on a fireplace, a wood stove and the local ice house to keep themselves warm or cool. These primitive methods are inefficient by today's standards, but at one time they were the best means available.

While we can still cool off with a tall glass of lemonade, air-conditioning and modern heating systems have revolutionized the way we live. Without air conditioning, some of our largest cities would have never grown. Refrigeration gives us a greater variety of foods to choose from, and improved ventilation systems make our environments healthier. Many of the industries that affect our everyday lives require special environmental conditions that only engineered systems can provide.

Though we don't always recognize it, all of us are touched by the activities of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

### **Your Home**

As you read the daily paper before leaving for work, you see an article about a local homeowner who is experiencing indoor air quality problems in his home. You breathe a sigh of relief, knowing that your home was built to requirements set in the only nationally recognized indoor air quality standard developed solely for residences.

Guidance in ASHRAE Standard 62.2 helps make sure that the air inside your home is clean and safe, without adding significant costs. It limits sources of pollutants and requires a small amount of mechanical ventilation to provide dilution for unavoidable contaminants such as dust mites, pollen and cleaning products. The standard ensures that HVAC and other systems work together to effectively ventilate homes and minimize sources of indoor pollution.

"The standard is just good, basic common sense," a researcher in the field of air flow and infiltration, said. "People need fresh air. The standard tells how to provide it and how to avoid other common problems."

Your monthly energy bill arrives, reflecting the energy-savings measures in your home. ASHRAE Standard 90.2 sets appropriate cost-effective energy efficiency levels for insulation and windows in homes and smaller apartment buildings.

The standard also addresses using energy-efficient heating and air conditioning equipment. When home and small apartments are built to the standard, people are more likely to save money on utility bills. An added benefit is reduced demand on the natural resources required to provide the gas and electricity to serve these buildings. It's time to change the filter for your air-conditioning or heating system. You'll see ASHRAE's name on most of the filters at your local home improvement store. Filters are tested in accordance with ASHRAE Standard 52.2, which establishes minimum efficiencies for filters and provides information on the performance of specific filters, allowing designers and operators to choose filters based on the contaminants found in a building.

Changing filters as recommended by manufacturers ensures that coils, equipment and distribution systems are kept clean, which improves system efficiency and equipment longevity and reduces cleaning and maintenance cost. It also reduces airborne particulate matter, which lowers housekeeping costs and exposure of occupants.

ASHRAE's name also can be found on the water heater in your home because the manufacturer tested the equipment according to one of ASHRAE's applicable equipment performance rating standards.

## **ASHRAE RESEARCH OVER THE LAST YEARS HAS MADE AN IMPACT IN YOUR LIFE AT HOME**

Wisconsin Chapter of ASHRAE  
SEMINAR  
Presented by the Research Promotion Committee

THURSDAY, NOVEMBER 17, 2011  
8:00 AM TO NOON

MSOE  
TODD WEHR AUDITORIUM  
1025 N. Broadway, Milwaukee WI

REGISTRATION 7:30 AM TO 8 AM  
Coffee, water and juice available

**SESSION 1A: 8:00 AM TO 9:45 AM**

**BASIC AND ADVANCED PUMP SELECTION:**

Presented by Larry Konopacz, Manager of Training and Education for ITT Bell & Gossett's Little Red School House.

Sponsored by Hydro-Flo Corporation.

This presentation will begin with a quick review of centrifugal pumps; including how they operate and the common design types installed in HVAC Systems. It will cover basic open and closed loop system piping designs and how each influences the pump head requirements. He will construct system curves for closed and open loop systems and underscore the importance of an accurate system analysis and the impact it has on proper pump selection. Mr. Konopacz will then review key criteria and alternatives available to the designer when making a pump selection. He will continue on to discuss use and misuse of Variable Frequency Drives.

**SESSION 1B: 10:00 AM TO 11:45 AM**

**SERIOUS CONSIDERATIONS FOR PUMPING HIGHLY AERATED WATER:**

Presented by Mr. William Armstrong, President of Fluid Handling.

Sponsored by Fluid Handling

Mr. Armstrong comes to us with unique pumping experiences that are very rarely discussed. It involves special considerations when handling highly aerated water, which is a consideration with every cooling tower. Nearly every serious pumping problem out there often involves cooling tower water and the problem always involves air. What air does is come out of solution at the lowest pressure point in the system, which is at the pump suction connection. The result is a phenomenon that acts like cavitation but is NOT true cavitation. Combining research from The Hydraulics Institute and information from the Cameron Hydraulic Data manual, Mr. Armstrong will provide us with an approach/presentation involving:

1. A review of true cavitation (resulting from water turning to vapor---steam--- at the impeller eye)
2. A review of air solubility in water and its reduced solubility at lower pressures---why air bubbles form at the pump suction with aerated water
3. How air bubbles act like steam bubbles to mimic cavitation
4. How air bubbles do not act like steam bubbles to mimic cavitation---it is not quite the same
5. The Hydraulic Institute approach to pump selection for aerated water based pump pump specific speed
6. A more practical approach to pump selection involving simple safety factors, for those who don't want to calculate pump specific speed (it is all an art anyway)
7. Indoor sump design and down comer design to allow air to escape.
8. Indoor sump design to break up vortices, which can further entrain air
9. Minimum water static height above the pump suction to eliminate vortex formation
10. Pump suction header design for multiple pumps
11. Review and lessons learned from two projects, Liberty Mutual and Harley Davidson: How the above principles resulted in erratic pump operation, and how application of these lessons solved those problems. (On the Liberty Mutual project, we verified our theory by making glass suction covers for the suction diffusers and witnessed pure froth at the pump suction. We also solved the problem by selecting different pumps).

**SESSION 2A: 8:00 AM TO 9:45 AM and SESSION 2B: 10:00 AM TO 11:45 AM**

**FAN TESTING AND SYSTEM EFFECT:** Presented by Ron Michael, Northeast Regional Manager for Loren Cook Company.  
Sponsored by Air-Flow, Inc.

System designers, mechanical contractors and fan manufacturers have often encountered problems with fans and systems. The question we all encounter is: ***“Why does a fan, which has been rated from laboratory tests in accordance with AMCA Standard 210, sometimes fail to perform up to rating when installed in a system?”***

The presentation will be based on AMCA Publication 201-02 “Fans and Systems”. This publication and the presentation will provide information on how fans are tested in a lab condition and how design engineers would apply that data to jobs. Mr. Michael will include a short explanation on understanding g fan curves and catalog tables from the lab data.

The balance of the presentation will attempt to answer the question as to why the fans sometimes fail to perform when installed in a system. The presentation will define: System Effect” and show proper inlet and outlet configurations explaining the importance of each to proper fan operation in addition to system effect factors.

The presentation will finish up with a video showing correct and incorrect connections to the fan with related performance. We will show inlet vortexes and swirling of air as well as uniform airflow.

**12:00 NOON TO 1:00**

**Lunch and ASHRAE General Monthly Meeting**

Speaker will be Ron Michael, Northeast Regional Manager for Loren Cook Company  
Discussing fan options not discussed in his earlier presentation.

**COST:**

**\$50.00 per person (lunch included)**

**ALL FUNDS TO GO TO RESEARCH PROMOTION FUND**

**REGISTRATION:**

[www.ashrae-wi.org](http://www.ashrae-wi.org)

click on registration

## Upcoming Chapter Meetings-Mark Your Calendars!

MEETING DATE / TIME	LOCATION/TIME	TOPIC	SPEAKER
November 17, 2011	MSOE 7:30AM-1:00PM	½ Day Seminar on Fan Laws, Pumping apps, Fan System Effect (See previous page)	See previous page
December 15, 2011	TBD/Evening	ASHRAE Holiday Party	

### Other Chapters

For details regarding *surrounding chapter* meetings see:

- o Northeast Chapter <http://www.newwisconsinashrae.org/>
- o Madison <http://www.ashraemadison.org/>
- o Illinois [www.illinoisashrae.org](http://www.illinoisashrae.org).

### **Wisconsin Chapter Officers and Committee Chairs**

President	Justin Patrick
Vice President	Tim Pann
Secretary	Jason Leffingwell
Treasurer	Jason Nenonen
Refrigeration Chair	Phil Golden
Membership	Joe Carmichael
Research and Promotion Chair	Randy Sikkema
Student Chapter Coordinator	Ryan McNally
Historian	Maggie Roll
Newsletter Chair and Editor	Brian Lynch
Website, Badgeraire Distribution	Steve Hagman
Governor at Large	James Burke
Governor at Large	Bill Armstrong