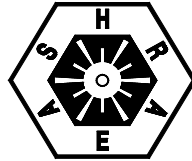


THE BADGERAIRE

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



December 16, 2010 Program: Chapter Holiday Party



ASHRAE Wisconsin Holiday Party

On December 16th, we cordially invite you to meet immediately after work in the **"Library" at Mo's Irish Pub** on the corner of Bluemound and Highway 100 in Wauwatosa for heavy appetizers (included), stiff drinks (included) and socialization with your friends from the industry.

It's a good time at the right price. No charge for members/significant others and only a \$20.00 charge for non-members/significant others.

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



President's Column

With the arrival of the cold weather and snow, that can only mean that the Holidays are now upon us. I would first like to start off this newsletter by wishing everyone a Happy and Safe Holiday Season.

Our November Chapter meeting was well attended and covered the very pertinent topic of ASHRAE Standard 189.1 (Standard for the Design of High Performance, Green Buildings). I would like to thank our ASHRAE Distinguished Lecturer, Merle McBride, for traveling to Milwaukee to present the Standard and discuss how it impacts our industry.

Our December meeting will be the Annual ASHRAE Holiday Party held at Mo's Irish Pub in Wauwatosa. The venue is the same as last year which was well received by the attendees. I would encourage all of our members to sign-up as this party continues to be a relaxed and social evening spent with your industry peers.

Please feel free to contact me or other Board of Governors members with comments or questions about our Chapter.

James Burke
President ASHRAE - Wisconsin Chapter
james.m.burke@jci.com
414-259-2831



Wisconsin Chapter Project of the Month

Waukesha Housing Authority Offices Heated and Cooled With Spring City Water

The Waukesha Housing Authority recently moved to a new 6,000 square foot headquarters in a refurbished fire house that had been unoccupied for over 20 years. Madisen Architects of Milwaukee served as architects for the renovation. Per Erik Madisen, one of his firm's goals was to create an energy- conserving project while retaining the building's large glass expanses. On the architectural side, this was accomplished by changing to energy-efficient windows and additional building insulation. A recent visit to the project showed that this goal was well-met, as the building provides an open, bright feel with many large windows.

The most unique aspect of the building is the way that The Matrix Group of Milwaukee turned one of the building's biggest problems into an asset. When doing their site survey, Matrix discovered a "problem" sump pump that ran continually. Further investigation showed that, regardless of season, at least 10-12 GPM of 50-55 deg.-F groundwater flowed into the sump 24 hours per day, 7 days per week. The flow increased from there in periods of very heavy rains. Charged with finding pumps that would last much longer than the light-duty pumps that the city had been purchasing, Matrix immediately recognized the constant flow of water as a potential heat source and heat sink for a hydronic heat pump project. Ken Senft of Matrix essentially was able to design a 16 ton ground source heat pump system without the expense of developing a ground source field or wells.

Ken designed a water-to-air heat pump system using nine Florida Heat Pumps. The heat pumps are served by a single series loop piping arrangement employing nine Taco Load Match circulators---one for each heat pump. The ground source side utilizes two sequenced Grundfos industrial grade sump pumps that run constantly to remove water from the sump. Fine sump level control is accomplished thru an overboard valve that returns a small amount of water to the sump in the event that pump capacity exceeds inflow rate. On its way to the city sewer, the pumped ground water passes thru a close approach ITT Standard plate and frame heat exchanger, which transfers heat to the heat pump loop during periods of heating and transfers heat away from the loop during periods of cooling. A Slant Fin Bobcat wall-mounted, gas-fired condensing boiler serves to add heat to the loop in the event that the loop temperature drops below 35 deg-F. Early experience indicates that the boiler will seldom, if ever, run. On a 23 deg.-F December day, the building was warm and comfortable, with the series loop being heated to 53 deg.-F by the 55 deg-F sump water, which exited the heat exchanger at 50 deg.-F. The combination of interior/exterior loads, improved envelope, and the use of a 76% efficient ERV that supplies outside air to the heat pumps through a common plenum, makes this an efficient system to operate.

Per Ken Senft, it is not anticipated that the loop will require additional cooling in summer, beyond what can be provided by the groundwater, as the plate and frame exchanger was sized to heat the exiting groundwater to 94 deg-F using a 98 deg-F loop temperature, allowing a cooling loop flow rate of only about 0.9 GPM/ton. The de-coupling provided by the Load Match circulators ensures that each heat pump

receives its normal design flow in spite of the relatively low loop flow.

Sheet metal work was performed by J & H Heating of Port Washington, and J.S. Mechanical of Milwaukee did the system piping.

Kudos to Madisen Architects for their vision, to The Matrix Group for turning a 20 year water problem into an energy efficient HVAC system, and to the contractors for providing a nice, clean installation!

Illuminating Society of America Announces Local Course

Attached you will find the IES 2011 Flyer. Based on our board meeting today we would like to get information for the class into our newsletter.

<http://www.iesmilwaukee.org/Education/IES%20flyer%202011.pdf>



Upcoming Chapter Meetings-Mark Your Calendars!

MEETING DATE / TIME	LOCATION/TIME	TOPIC	SPEAKER
December 16, 2010 Right After Work	Mo's Pub, Tosa	Holiday Party	We Hope You ALL Talk
January 20 th , 2011 Noon Meeting	MSOE Tentatively	Annual Code Refresher	Randy Dahmen
February 17 Afternoon Meeting	Miller Brewery Tour	Details to Follow	Details to Follow
March 17, 2011	TBD	½ Day Tech Seminar on a Variety of Topic	Various but St. Patrick is Confirmed

Other Chapters

MEETING DATE / THEMES	LOCATION	TOPIC	SPEAKER
Madison December 13, 2010	Nakoma CC	Waterside Heat Recovery	Mick Schwedfer

For details regarding surrounding chapter meetings see:

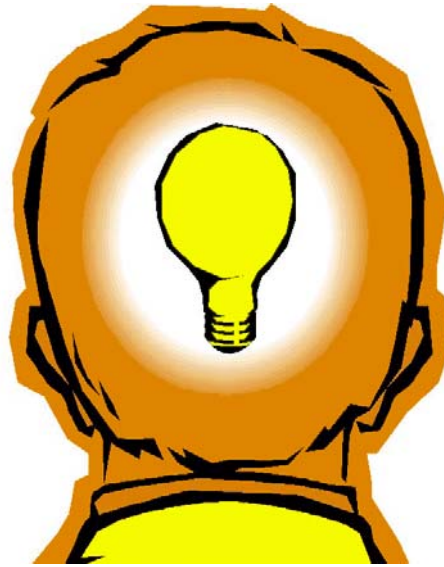
- o Northeast Chapter <http://www.newisconsinashrae.org/>
- o Madison <http://www.ashraemadison.org/>
- o Illinois www.illinoisashrae.org.

Wisconsin Chapter Officers and Committee Chairs

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

Fundamentals of Lighting

Winter 2011



**Join us
and learn the fundamentals of lighting**

Sponsored by IESNA: The Illuminating Engineering Society of North America

This seven-session course provides participants with an introduction to the fundamentals of illumination. It gives a comprehensive overview on basic lighting principles, lamp and luminaire types, lighting calculations, and controls, as well as functional and aesthetic applications. This course is ideal for architects, engineers, designers, contractors, manufacturers, distributors, and students.

The Fundamentals of lighting course is comprised of seven sessions: Wednesday evenings, 6:30-9:00pm, February 9th through March 23rd, 2011. The standard registration fee is \$225 and includes the Lighting Fundamentals text and a copy of the IES Lighting Handbook Ready Reference Guide.

Course Credits

Lighting Fundamentals participants can be eligible for:

- 17 IESNA CEU credits
- 17 AIA LU credits

Facilities kindly provided by:

Mount Mary College
2900 N Menomonee River Pkwy
Class is located in Halfaer Hall



Overview & Class topics...

Module 1 - History, Defining Light, Vision, & Color **February 9th**

In this introductory presentation we will cover the history of light and lighting, define light through both physics and metrics, illustrate the four components of vision, and discuss various aspects of color theory from color mixing to the color rendering index.

Jimalee Dakin LC LEED AP

Visa Lighting

Module 2 - Light Sources & Ballasts **February 16th**

Light sources including incandescent, fluorescent, high intensity discharge lamps and LED's will be presented. Lamp and LED operating principles, applications, equipment necessary to power these sources, and other considerations will also be reviewed.

**Michael Lynch LC/
Howard Wolfman PE**

**GE Consumer & Industrial/
Lumispec Consulting**

Module 3 - Luminaires and Controls **February 23rd**

Common luminaire types, their mounting and applications, as well as mounting arrangements are presented. Types of control devices including switching, sensors, and time clocks, control requirements, and lighting control strategies are further discussed.

Randy Janicek

Engineered Representation, Inc.

Module 4 - Photometry & Lighting Calculations **March 2nd**

The elements of a photometric report (the standard descriptor of fixture light output) will be discussed. An overview of the two lighting design calculation methods, the Lumen Method for average illuminance, and the point method for illuminance at a point, will also be presented along with their uses in the design process.

Chris Glandt, LC MIES

Visa Lighting

Module 5 - Lighting for Interiors **March 9th**

The lighting design process and the principles behind lighting design for interiors are discussed. Applications and innovative designs explicate these techniques.

Marty Peck, LC, IALD

Creative Lighting Design & Engineering

Module 6 – Lighting for Exteriors **March 16th**

Great lighting effects are not just for the indoors. Exterior lighting that is considerate of the environment and still gives maximum visual performance will be presented.

Yazi Fletcher LC

Phoenix Products Company, Inc.

Module 7 – Issues in Lighting **March 23rd**

The phases of the design process are presented. Other important topics in lighting design are covered ranging from sustainability to health issues.

**Steven L. Klein IALD LC IESNA/
Shanna Olson**

**Klein Lighting/
IBC Engineering**

Participants will receive the Lighting Fundamentals Text and a copy of the Lighting Handbook Ready Reference Guide. Those who register after January 26th cannot be guaranteed course materials on the first day of class.

Registration Form:
IES Milwaukee Fundamentals of Lighting

Registration fees must be paid in advance.
Make checks payable to: IES Milwaukee Section

To register, please print this form and send the completed form along with payment to the address below.

Name _____

Title _____

Company/
School _____

Address _____

City _____

State _____ ZIP _____

Day Phone _____

Fax # _____

E-mail _____

I will attend the IES Lighting Fundamentals Course. Attached is a check for:

- \$225.00 Standard Cost
- \$100.00 Student Cost w/reference guide
- \$75.00 Student Cost w/o reference guide

*Students cost options are for those enrolled at least half-time in a degree-granting program (associate's, bachelor's, master's, or doctorate).

CONFIRMATION WILL BE SENT VIA EMAIL.

Mail form and payment to:

**IES Milwaukee Section
N8 W22195 Johnson Drive
Waukesha WI, 53186
c/o Shanna Olson**

For more information, contact
Shanna Olson
262-522-4425
shannao@ibcengineering.com

***Hurry! Register Now,
Space is Limited...***