ASHRAE Greenville Chapter

Giga-Joule

January 2016

http://www.ashrae4greenville.com/newsletter.php

Meeting Announcement

The January meeting will be held on **Tuesday, January 12, 2015** at M.T. Anderson Support Center. For more information, please contact our Secretary, Melissa Angulo, at secretary@ashrae4greenville.com.

Chapter Board of Governor special message

Infiltration Estimates - More Questions than Answers

The November chapter meeting featured Raymond Patenaude's presentation on building envelopes in humid environments, which touched a nerve a nerve with me. Mr. Patenaude spent several minutes talking about building infiltration. I find estimating infiltration to be one of the most challenging tasks associated with calculating building air conditioning and cooling loads.

During a social event I cornered Daniel Lowe and queried him on actual measurements that he has conducted related to building infiltration using a blower door. Paraphrasing some of his comments:
The Army Corp of Engineers requires buildings to meet the standard of 0.25 cfm/ sq ft of building envelope at a pressure differential of 75 Pa. A Green Globe standard is 0.40 cfm/sq ft at the same pressure. For these standards, building envelope is walls, roof and floor. It is his experience that buildings that are not judiciously vetted and inspected from design through construction to maintain an effective air barrier will not pass the 0.25 standard; whereas, the 0.40 standard is more achievable.

I tried to locate other sources and their suggested values.
An article in the November issue of the ASHRAE Journal by Wagdy Anis notes that 0.4 cfm/sf at 75 Pa is code referenced standard.
ASHRAE 90.1-2013 Appendix G is used to establish the standards for modeling building compliance. Appendix G recommends an infiltration rate of 0.40 cfm/sq ft for the exposed envelope surface area at 75 Pa.
An article on inputting infiltration rates into the EnergyPlus software can be found at www.PNL.gov. It contains a number of values for various types of exterior wall construction. Unfortunately, I found the data presented in this article confusing. It appears they are recommending an overall value of 1.8 cfm/sf when the building HVAC systems are off and 25% of that value when on. I think there is a pearl in this document somewhere, but I haven't found it yet.

The majority of these standards and recommendations are based on 75 Pa or a pressure difference of 0.30 inches w.g. This pressure, if converted directly to velocity pressure, corresponds to 2,233 ft/min or 25 mph. Is this a realistic value to use for design purposes? With the vagaries of wind speed, direction, building pressurization, it's hard to tell.

Mr. Anis's article also references an ASHRAE research study where 16 buildings of 4 to 16 stories were tested at 75 Pa. The measured leakage rates ranged from 0.06 to 0.74 cfm/sf, including below grade walls and slabs-on-grade as part of the envelope barrier. Leakage rates that vary by a factor of 10!

With the data summarized above I feel more informed and believe I can do a better job estimating infiltration, but it is still an estimate.

My thanks to Daniel Lowe for his input and assistance with the research.

Thank you,

Devon Cortright
VP of Mechanical Engineering
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In efforts to keep you updated, visit us at:

WEBSITE: www.ashrae4greenville.com
LINKEDIN: https://www.linkedin.com/groups?home=&gid=8154388&trk=anet_ug_hm
EVENTCALENDAR: View ASHRAE Greenville Chapter Meetings calendar

January Meeting

Presenter: **Andrew T. Holden, P.E.**

Andrew T. Holden, P.E. is a Sales Executive with NovaTorque, Inc. which is a California based company that produces ferrite based permanent magnet motors. Andy is an industrial engineer from Georgia Tech and has spent almost 10 years in the HVAC industry as a manufacturer's representative and currently focused on representing NovaTorque's motors to engineers, architects, owners, OEMs, contractors, reps, and end users. In addition to his time spent in the HVAC industry he has spent over 5 years in the electric power generation sector as a consultant a commercial manager with international responsibilities.

LECTURE TOPIC:

Permanent Magnet Motor Technology

This presentation will provide a broad introduction to PM motor technology with comparisons against premium induction motors. The presentation will include discussion of motor performance, advantages and disadvantages, impact on energy savings, and examples (both lab and real world) that illustrate the efficiency difference between PM and induction motors.

Programs: **Permanent Magnet Motor Technology – 1 PDH**

Location: M.T. Anderson Support Center
100 Blassingame Road
Greenville, SC 29605

Date: Tuesday, January 12, 2014

Time: 11:30 a.m. Doors Open
11:35 a.m. Lunch Served
11:45 a.m. to 12:00 p.m. Chapter Business
12:00 p.m. to 1:00 p.m. Program

Cost: Lunch Program: $13 in advance $15 at door for chapter member (catered lunch)
$20 for non-chapter member (catered lunch)

Education Credit: The Technical Programs qualify for 1.0 PDH (including NC PE) for each program attended.

Please RSVP by going to the following link
http://goo.gl/forms/ddxhcgU515
No later than Noon Monday, January 11, 2015

ASHRAE Greenville Chapter Board
2015-2016 Committee

Chapter President	Tigue Garick
Chapter President Elect	Rodney Hinton
Chapter Vice President	Myrna Dayan Daniel Lowe
Chapter Secretary	Melissa Angulo
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Chapter Grassroots Government Activities Chair	Bill Knight
Chapter Historian	Daniel Lowe
Chapter Honors and Awards	Devon D Cortright
Chapter Webmaster	Karl F Counts
YEA CHAIR	Jeremy Butdorf

Meeting Dates for 2015-2016

Tuesday 09/08/2015	ASHRAE Standard 62.1-2010, IAQ Procedure	Greenville, SC	Presenter: Charlie Waddell, Global Plasma Systems
Tuesday 10/13/2015	Condensing Boiler Applications & Venting	Greenville, SC	Presenter: Kevin Smith
Wednesday 10/14/2015	Condensing Boiler Applications & Venting	Asheville, NC	Presenter: Kevin Smith
Tuesday 11/10/2015	Fundamentals of Building Envelopes in Hot & Humid Climates	Greenville, SC	Presenter: Ray Patenaude, PE, CMA, CIAQP, CEM, RPIH ASHRAE Distinguished Lecturer
Wednesday 11/11/2015	Fundamentals of Building Envelopes in Hot & Humid Climates	Asheville, NC	Presenter: Ray Patenaude, PE, CMA, CIAQP, CEM, RPIH ASHRAE Distinguished Lecturer
Tuesday 12/15/2015	Modern Pump Selection	Greenville, SC	Presenter: Chris Edmondson ASHRAE Distinguished Lecturer
Tuesday 12/16/2015	Modern Pump Selection	Asheville, NC	Presenter: Chris Edmondson ASHRAE Distinguished Lecturer
Tuesday 01/12/2016	Permanent Magnet Motors	Greenville, SC	Presenter: Andrew T. Holden, PE
Tuesday 02/9/2016	DOE Recommended Details for Chiller Plant Optimization	Greenville, SC	Presenter: David Pleasants, PES
Tuesday 03/8/2016	HVAC Systems for Pharmo/Bio Facilities	Greenville, SC	Presenter: Manuel A. del Valle
Tuesday 04/12/2016	Commissioning of the Built Environment - Principles, Process, Procedures, and the	Greenville, SC	Presenter: Ross Montgomery, PE,CXA,CPMP,BEAP, BEMP ASHRAE Distinguished Lecturer
Wednesday 04/13/2016	Commissioning of the Built Environment - Principles, Process, Procedures, and the	Asheville, NC	Presenter: Ross Montgomery, PE,CXA,CPMP,BEAP, BEMP ASHRAE Distinguished Lecturer
Monday 04/18/2016	Research Promotions Golf Tournament	Clinton, SC	Location: Musgrove Golf Club
Tuesday 05/10/2016	AHRI ratings for Energy Recovery & DOAS equipment	Greenville, SC	Presenter: Eric VanUytfanck Venmar

ASHRAE Greenville Chapter

Unless otherwise stated meetings are:
2nd Tuesday of the Month
11:30am – 1pm
MT Anderson Support Center
100 Blassingame Road. Greenville, SC 29605
Each program provides at least 1 PDH

Networking/ Social Events for 2015-2016

Wednesday 09/16/2015	Willis Carrier Student Scholarship Presentation	Greenville, SC	Clemson University
Monday 11/09/2015	ASHRAE Fall Fishing Trip	Elizabethton, TN	Watauga River
Monday 04/11/2016	ASHRAE Spring Fishing Trip	Elizabethton, TN	Watauga River

ASHRAE Winter Conference

Start Planning for 2016 ASHRAE Winter Conference**, Jan. 23– 27, Orlando, FL.**

Visit www.ashrae.org/orlando.

2016 Winter Conference
Jan. 23-27
Orlando Hilton
Orlando, FL

AHR Expo
Jan. 25-27
Orange County Convention Center
Orlando, FL