

THE LONG ISLAND SOUNDER

ASHRAE Long Island Chapter, Region 1...*Founded in 1957*

October 2009



www.ashraeli.org

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

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President's Message

Last month we kicked off what promises to be another rewarding year of ASHRAE for the Long Island Chapter. We introduced this year's Board of Governors and committee chairs and highlighted their role in moving our chapter forward.

Our featured speaker in September was HVAC industry veteran William Shultes of NuClimate Air Quality Systems. William is also an ASHRAE veteran, having served as president of the Central New York ASHRAE chapter in 1981 and maintained membership since 1968.

William's presentation on chilled beam systems was well-received. With our ever-increasing focus on green technology, LEED certification, etc., the presentation was both timely and informative. Chilled-beam systems require less energy than traditional variable air volume (VAV) systems.



Continuing with our green theme, the presentation at our October 20 meeting will be "Going Green—Reducing Emissions and Improving Fuel Efficiency in Commercial and Industrial Boiler Applications." In addition in October we will hold one of two Student Activities Nights scheduled for 2009-2010. Long Island historically has been a hotbed for engineering. Let's work together to encourage local students to pursue careers in our field

Please keep in mind that our November meeting will be a joint meeting with the U.S Green Building Council (USGBC) and Membership promotion night.

I'd like to thank all of our volunteers and members for your ongoing support and enthusiasm to move our society, in particular, and our industry, in general, forward. I look forward to seeing everyone at our meeting on October 20.

Steven Giammona, P.E., LEED AP
President - Long Island Chapter

CHAPTER MONTHLY MEETING

DATE:	Tuesday, October 20, 2009
TIME:	6:00 PM - Cocktails/Dinner 7:00 PM - Dinner Presentation 8:45 PM - Conclusion
LOCATION:	Westbury Manor South Side of Jericho Tpke. 25 Westbury, NY 11590
FEES:	
Members -	\$35.00
Guest -	\$40.00
Student -	\$15.00

Reservations requested, but not required.

Call (516) 333-7117

Long Island Chapter Officers & Committees

ASHRAE 2009/2010 OFFICERS

POSITION	NAME	PHONE	FAX	EMAIL
President	Steven Giammona, P.E., LEED AP	516.827.4900	516.827.4920	srg@cameronengineering.com
President-Elect	Nancy Román	516.568.6509	516.568.6586	nroman@adehvac.com
Vice President	Carolyn Arote	516.568.6550	516.568.6575	carote@adehvac.com
Financial Secretary	Brian Simkins, LEED AP	203.261.8100	203.261.1981	bsimkins@accuspecinc.com
Treasurer	Andrew Manos, LEED AP	631.981.3990	631.981.3971	amanos@emtec-engineers.com
Secretary	Janeth Costa	631.242.8787	631.242.7084	jcosta@apollohvac.com
Board of Governors	Richard Rosner, P.E.	631.574.4870	631.574.4871	rrosner@nassausuffolkea.com
Board of Governors	Thomas Fields, P.E., LEED AP	212.695.1000	212.695.1299	tfields@lilker.com
Board of Governors	Steven Friedman, P.E., HFDP, LEED AP	212.695.1000	212.695.1299	sfriedman@lilker.com

ASHRAE 2009/2010 COMMITTEES

COMMITTEE	NAME	PHONE	FAX	EMAIL
Programs & Special Events	Nancy Román	516.568.6509	516.568.6586	nroman@adehvac.com
Membership	Richard Rosner, P.E.	631.574.4870	631.574.4871	rrosner@nassausuffolkea.com
Chapter Technology Transfer (CTTC)	Brian Simkins, LEED AP	203.261.8100	203.261.1981	bsimkins@accuspecinc.com
Newsletter Editor	Liset Cordero	212.643.9055	212.643.0503	liset.cordero@mgepc.net
Resource Promotion	Andrew Manos, LEED AP	631.981.3990	631.981.3971	amanos@emtec-engineers.com
Historian	Carolyn Arote	516.568.6550	516.568.6575	carote@adehvac.com
Student Activities	Thomas Fields, P.E., LEED AP	212.695.1000	212.695.1299	tfields@lilker.com
Webmaster	Janeth Costa	631.242.8787	631.242.7084	jcosta@apollohvac.com
Nominating	Michael Gerazounis, P.E., LEED AP	212.643.9055	212.643.0503	michael.gerazounis@mgepc.net
Reception & Attendance	Anita Singh, LEED AP	516.827.4900	516.827.4920	abs@cameronengineering.com
PR & Engineering Joint Council of LI	Peter Gerazounis, P.E. LEED AP	212.643.9055	212.643.0503	peter.gerazounis@mgepc.net
Golf Outing	Peter Gerazounis, P.E., LEED AP Steven Friedman, P.E., HFDP, LEED AP	212.643.9055 212.695.1000	212.643.0503 212.695.1299	peter.gerazounis@mgepc.net sfriedman@lilker.com

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Chapter Monthly Meeting - Program for 2009/2010

<p>September 15, 2009 * At Westbury Manor - 1 PDH </p> <p>Dinner Presentation - Chilled Beam Systems MEMBERSHIP PROMOTION NIGHT</p>	<p>February 2010 NATIONAL ENGINEERS WEEK DINNER</p>
<p>October 20, 2009 * At Westbury Manor - 1 PDH</p> <p>Dinner Presentation - Going Green-Reducing Emissions and Improving Fuel Efficiency in Commercial and Industrial Boiler Applications STUDENT ACTIVITIES NIGHT</p>	<p>March 9, 2010 * At Westbury Manor</p> <p>Dinner Presentation - Stack Effect RESOURCE PROMOTION NIGHT</p>
<p>November 10, 2009 * At Westbury Manor - 1 PDH</p> <p>Dinner Presentation - Introduction to LEED NC Building Commissioning JOINT MEETING WITH USBGC ASHRAE DISTINGUISHED LECTURER RESOURCE PROMOTION MEMBERSHIP PROMOTION NIGHT</p>	<p>April 13, 2010 FIELD TRIP - Allegria Hotel Facility</p>
<p>December 8, 2009</p> <p>Holiday Party - Westbury Manor</p>	<p>May 3, 2010 * Cherry Valley Club, Garden City, NY ANNUAL GOLF OUTING</p>
<p>January 12, 2010 * At Westbury Manor</p> <p>Dinner Presentation - Interpretation of HVAC Systems Test/Balancing Procedures and Reported Data</p>	<p>May 11, 2010 * At Westbury Manor</p> <p>Dinner Presentation - Refrigeration REFRIGERATION NIGHT</p>
<p>February 9, 2010 * At Westbury Manor</p> <p>JOINT MEETING WITH SMACNA Dinner Presentation - TBD STUDENT ACTIVITIES NIGHT</p>	<p>June 8, 2010 * At Westbury Manor PAST PRESIDENTS & OFFICER INSTALLATION</p>
<p>February 2010</p> <p>ASHRAE Winter Meeting</p>	<p>June 2009 - TBD</p> <p>ASHRAE Annual Meeting</p>

August 2009 - Chapter Regional Conference Region I

PAOE POINTS FOR 2009/2010

Chapter Members	Membership Promotion	Student Activities	Research Promotion	History	Chapter Operations	CTTC	Chapter PAOE Totals
301	150	0	0	0	0	100	250

October Program

You are cordially invited to our October 2009 Meeting...



Dinner Presentation

“Going Green-Reducing Emissions and Improving Fuel Efficiency in Commercial and Industrial Boiler Applications”

*Presented by
Mark Wehmeier
Vice President, Engineering*

**Attendees
Will Earn
1 PDH!**

DATE:	TUESDAY, OCTOBER 20, 2009		
Time:	6:00 PM – Cocktails and Hors D'oeuvres 7:00 PM – Dinner Presentation 8:45 PM – Conclusion	Fee:	\$ 35.00 Member \$ 40.00 Guest \$ 15.00 Student
Location:	WESTBURY MANOR (516) 333-7117 Jericho Tpke (South Side), 3/10 of mile east from Glen Cove Rd., Nassau County, NY. Directions are posted at @ www.ashraeli.org.		
Presentation:	<p>Mark's presentation includes two segments, the first provides basic information on the identification of greenhouse and pollution gases, how they are formed and the environmental concerns. The discussion focuses on how these gases are produced in commercial and industrial boilers and the various technologies available for reducing the emissions. The second segment discusses methods of improving boiler / burner efficiency by reducing the power consumption and utilizing various burner control strategies. The data will include potential savings and cost analysis information.</p> <p>Also speaking briefly will be Mr. Lee Westerlind from National Grid's Energy Efficiency Group. Lee will provide information on several incentive programs that are available to provide rebates from the Utility for the implementation of burner control strategies.</p>		
About our Speaker:	<p>Mark Wehmeier has over 23 years experience in the burner/combustion industry. For the past five years he has headed up the engineering activities at Power Flame Inc. Power Flame is a leading producer of gas, oil and combination gas/oil burners for the commercial, industrial and process markets that provides burners to virtually every boiler OEM in North America as well as for retrofits on existing units.</p> <p>Prior to his appointment to VP of Engineering, Mark was responsible for the R&D and service group at Power Flame. Before joining Power Flame, Mark spent 9 years in the burner/combustion industry starting as an engineer and working his way up to Manager of Engineering for Webster Engineering & Mfg. Co. He is a graduate of Valparaiso University in Valparaiso, IN with a Bachelor of Science Degree in Mechanical Engineering.</p>		

CHAPTER MAY NOT ACT FOR SOCIETY

An International Organization

Board of Governors Meeting Minutes

On Tuesday, September 15th, 2009, a meeting of the Board of Governors was held at the Westbury Manor. Attendees were: Steven Giammona, Steven Friedman, Nancy Roman, Carolyn Arote, Brian Simkins, Janeth Costa, Andy Manos, Richard Rosner and Tom Fields. President Steven Giammona called the meeting into session at 5:01pm.



General Items: We reviewed each member's experience/thoughts on this year's CRC in Albany, NY and what is expected from their individual RVC's. It was also requested that all members submit their travel expenses as soon as possible to Andy Manos.

Resource Promotion: Andy Manos stated that our new goal for this year is the same as last year's. The following items were also discussed:

- New ways to generate more donations towards Resource Promotion. We discussed the possibility of donating some of our chapter money towards a 'Foundation Donation', which means that the chapter not only contributes towards the Resource Promotion goal, but also gets 5% back every year. Andy also mentioned the idea of a joint venture with the NYC chapter to distribute 'vendor directory' books to all members to encourage donations.
- Setting up a PayPal Account on the website to allow members to prepay for dinners.
- Full Circle is due by November 1st. All board members must donate \$100 in order to win award. Please give checks to Andy at next meeting.
- As of right now, November & February have been chosen as Resource Promotion Nights.

Programs: Nancy Roman reviewed what speakers/topics she plans on having for the year. Distinguished Lecturer is planned for November meeting.

Historian: Carolyn Arote has to update the PAOE points.

Webmaster: Janeth Costa discussed our website and has already gotten Anthony involved in updating it. We reviewed the possibility of revamping the website completely including the addition of PayPal. Janeth will request a proposal from Anthony for the regular maintenance/updating of the website. In addition, we also want a proposal from Anthony on what it would cost to completely revamp the website. We also discussed the possibility of setting up on-line advertising links and industry related links that may be useful to our members. Janeth will ask Anthony to attend some of the board meetings so he can get more involved with the website work & offer his ideas/suggestions.

Treasurer: All accounts have been handed over to our new treasurer Andy Manos. Financial update on Savings/MM accounts was given. We were granted filing extension.

Membership: Richard Rosner discussed having Membership Promotion Nights in October & March. He also reviewed possible strategies for obtaining new members. PAOE points are to be updated monthly for membership promotion.

Student Activities: Tom Fields discussed having Student Activities Nights in October & February. He also discussed setting up a link on Facebook & LinkedIn. He plans on setting up various college and high school visits. Tom also would like to encourage all members to attend their children's schools in an effort to get more students interested in ASH-RAE. PAOE points are to be updated monthly for student activities.

Chapter Technology Transfer (CTTC): Brian Simkins plans on having Refrigeration Night in May. PAOE points are to be updated monthly for CTTC.

Open Board Discussion: The golf outing has been tentatively set for May 3, 2010. This has to be confirmed.

Having discussed all open issues, the meeting was adjourned at 6:10pm.

Janeth Costa
Chapter Secretary, 2009-2010

History

As historian part of what my job to do is to keep our Chapter in touch with our past, which helps keep today more interesting. As I look through the old paper-work, I keep my eyes open for something that stands out. This month I stumbled upon a booklet for our "Silver Anniversary Celebration" from 1983, held at the Garden City Hotel.

The thing that struck me about this booklet was not only how many people's names I recognized but how many people were actually a part of our chapter committees. There were over 40 persons contributing to our committee needs. In case you have ever run into these people throughout your days I will list just the chairpersons...Ken Graff, Wilbur Reichenbach, Evans Lizardos, Gloria Allen, John Haarhaus, Robert Rose, Leon Taub, Walter Stark, Lou Bloom, John Mazza, Jerry Norris, Robert Beechinor, Al Edelstein, Ralph Butler, Ray Combs, Henry Schulman, Stan Kozyra, Jim McCormick, John Tiedemann.

Some of these names are unfamiliar to a young lass like myself, others are very familiar as they are still active in our chapter today. The fact that people have put in their time for over 25 years to this chapter really says something about them. It says something about why we are here today, to become a part of history.

Carolyn Arote
Chapter Historian



Membership

We had a great turn out at the September meeting; it was wonderful to see you all after the summer break. After reading the membership reports, however, I see a lot of our key members have forgotten to renew their memberships. If you think you might have forgotten you can drop me a line at rrosner@nassausuffolkea.com and I will gladly look it up for you. Renewal applications are available online at <http://www.ashrae.org/members/>. Also think about upgrading your membership grade if you are due for an upgrade, as this strengthens our chapter as well as your position in the field.

New members are the life and breath of our organization and it would be great if you could bring down a colleague or maybe a new member of your firm to introduce them to ASHRAE encouraging them to sign up. We have some very educational programs planned; the food and company are always great so bring them down, they will be delighted you did. The November meeting will be a membership promotion night and a great time to bring down prospective members.

See you at the October meeting; if you have any questions concerning membership please feel free to ask anytime.

Richard Rosner, P.E.
Membership Chairman

Research Promotion

This is my first year as Resource Promotion Chair. This year's RP training, which was held in Chicago, was very insightful. I was able to interact with other RP Chairs in different regions and share ideas on how to better generate funds. Leaders from ASHRAE Headquarters also spoke to us about what the financial goals and research projects are for this coming year. This year's overall resource promotion goal is \$2,001,900 with over 75 research projects on board. Our chapter is expected to raise approximately \$12,881 towards the overall goal. I am hoping I can count on the continued support of all of our past contributors who have generously supported us over the years. I also look forward to gaining the support of new contributors this coming year. Please help support ASHRAE in any way you can.

A special thank you to all of last year's contributors:

Kevin Beirne	John D Nally	Bladykas Engineering P C
Andrew S Braum	Jerome T Norris	Brandon Associates
Janeth Costa	Michael O'Rourke	Bush Wholesalers
John C Cronin, Jr	Robert A Rankel	County Fair Air Conditioning Corp
Steven D Friedman, PE,HFDP,LEED AP	Nancy Roman	County Pneumatic Controls Inc.
Ricky Gaska	Donald E Ross	EMTEC Consultants Professional Eng
Michael Gerazounis, PE, LEED AP	Raymond G Schmitt	KP Professional Engineering PC
Peter Gerazounis, PE, LEED AP	Brian C Simkins	Lizardos Engineering Associates PC
Steven R Giammona, PE, LEED AP	James R Tauby, PE	Long Island ASHRAE Chapter
Carl E Graber, PE	A D E Systems Inc	Riverside Hydronics
David Robert Jendras	Accuspec Inc	S M A C N A - Long Island
Ronald J Kilcarr, PE	Anron Heating & Air Conditioning Inc	Ultimate Power
Andrew E Manos	Applied Technologies of NY Inc	
Frank D Morgigno	Berne & Bob Leventhal Inc	

I would like say '**thank you**' to all the contributors listed below whom have already donated to ASHRAE this year:

Mr Andrew J Garda	Mr Fred H Weber	Mr Michael O'Rourke
Mr Arthur A Huebner	Mr Jerome A Silecchia	Mr Patrick J Lama
Mr Brian C Simkins	Mr John D Nally	Mr Raymond G Schmitt
Mr Christopher M Schwarz	Mr Michael Gerazounis, PE, LEED AP	Mr William L Mahon

A Glance at What Your Resource Promotion Dollars Are Helping To Sponsor

EXPERIMENTAL INVESTIGATION OF HOSPITAL OPERATING ROOM (OR) AIR DISTRIBUTION - The proposed research will advance the state of the art in design of these spaces; it may also promote advances in related fluid mechanics research areas. The most obvious advance will be in the enhancement of the design guidelines for hospital operating rooms (OR's). If a protective thermal plume is maintained above the surgical site, the deposition of infectious particles should be reduced. The conditions that sustain the thermal plume have been predicted by earlier CFD simulations. The pertinent results will verify these predictions.

Otherwise, the results will define a somewhat different but experimentally verified range of conditions. These results will have significant impact on practical OR design guidelines, but the impact will not be limited to this one, albeit important, direct application. Other indirect advances will accrue from the proposed research. The detailed experimental results will be used to refine and improve the CFD modeling of OR air distribution, and the improved modeling techniques can be applied to air distribution engineering else-where in health care, such as patient protection rooms and infection isolation rooms, where similar unidirectional laminar flows are advisable. The improved engineering tools should be broadly useful in health care and in similar application such as industrial clean rooms.

Cont'd on Page 8

Research Promotion (Cont'd. from Page 7)

New Projects Recently Approved For Funding

THERMAL PERFORMANCE OF BUILDING ENVELOPE DETAILS FOR MID- AND HIGH-RISE BUILDINGS - The project will have an impact on most, if not all, ASHRAE members, especially those who design for extreme hot or cold climates. The results will provide a tool for better design of building envelope thermal performance, which will contribute to improved HVAC design and moisture control, with corresponding reduced risk of thermal comfort and mold problems.

ENERGY EFFICIENCY AND COST ASSESSMENT OF HUMIDITY CONTROL - The project team will perform limited model development in areas where gaps remain in the ability to model latent performance of some systems. Efficiency and cost analysis will be performed as part of this project in order to provide clear ranking of the ability and effectiveness of various approaches and technologies to achieve indoor RH control.

ISLAND HOOD ENERGY CONSUMPTION AND ENERGY REDUCTION STRATEGIES - Quantify in a laboratory environment, the impacts of hood design measures (such as side skirts) on single island canopy hoods, single island v-bank hoods, double island (back to back) hoods, and ventilated ceilings.

ECONOMIC DATA BASE IN SUPPORT OF STANDARD 90.2 - The purpose of the standard is to provide minimum energy efficiency requirements for the design of low-rise residential buildings. As part of that development, economic data is necessary to facilitate that maintenance and development of future additions.

CONTRIBUTIONS CAN BE MADE IN THE FOLLOWING WAYS:

1) You can mail your checks, made out to ASHRAE Resource Promotion, to:

Andrew Manos
 ASHRAE Research Promotion Chair
 c/o Emtec Consulting Engineers
 3555 Veterans Memorial Highway
 Ronkonkoma, NY 11779

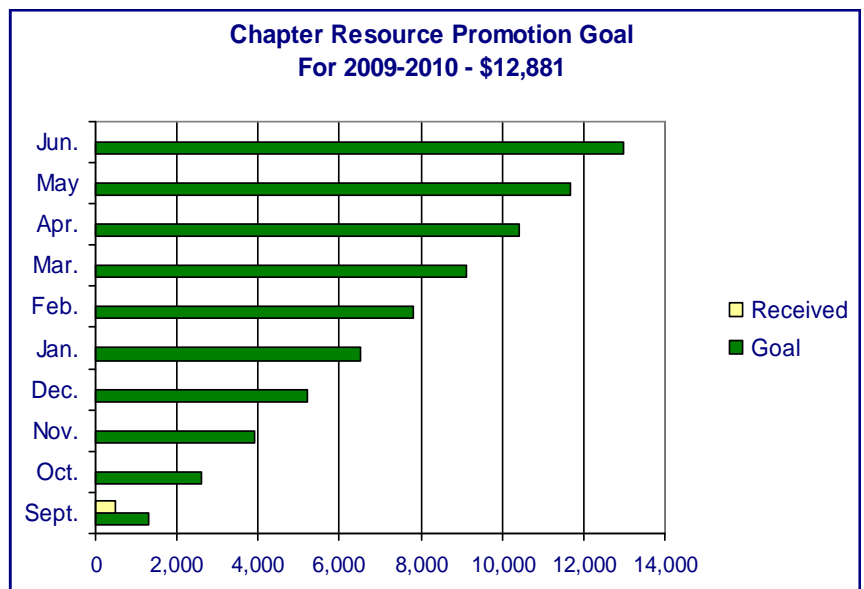
2) You can bring your check to any of the meetings and give it to me. I will mail it into headquarters.

3) You can contribute directly on-line.
www.ashrae.org

Please make sure your accredit your contribution to the LONG ISLAND CHAPTER 006 *

Thank you again for all your support!

**Andrew Manos, LEED AP
 Resource Promotion Chair**



ASHRAE Research - Working For You Everyday

ASHRAE Research Working For You Everyday!

How Operation and
Maintenance Practices
Affect Indoor Air Quality in
Office Buildings

Development of an ASHRAE
HVAC Guide for Tall Buildings

Study of the Effect of
Thermal Environment
on Productivity and
Learning

Methods of Improving Air
Quality in Air Conditioned
Spaces



Please continue your support TODAY!

CTTC

Acoustic Design In Green Buildings: A number of green building rating systems formalize the implementation of sustainable design practices. Although draft standards with some acoustic requirements are under consideration, quantitative acoustic design requirements are not included in current sustainable design standards. The question arises as to whether a building that is not comfortable acoustically, and therefore not fit for its purpose, is actually a sustainable building for its occupants.

In post-occupancy surveys, the acoustic environment, specifically the lack of adequate speech privacy and control of noise levels, has been a major complaint with respect to the ability to carry out work tasks. Sustainable design practices can introduce challenges to acoustic design. Nevertheless, acoustic design strategies are important for sustainable buildings. And, practical methods can be incorporated within green building rating systems to be mutually inclusive with nonacoustic credits.

Preventing Noise Creep: A sustainable building or development should control noise emissions to ensure that ambient noise creep, or the gradual increase in ambient noise levels over time, does not occur. The accumulation of noise sources, even though each noise source may be at or near the existing background noise level, will significantly raise the overall noise level. For example, 10 equal sources in combination will yield a total noise level 10dB louder than a single source.

Meeting an external noise level limit relative to existing background noise levels, without reference to any amenity standards (absolute noise level limits), is not satisfactory and results in noise creep. In addition, existing background noise levels may not be compatible with the amenity standards appropriate for the particular receiver type.

To prevent noise creep, adherence to amenity levels for the development site should be enforced at the design and operational stages. A typical example is the control of external mechanical plant noise propagation to surrounding areas by suitable selection of equipment and/or provision of noise control measures to prevent disturbance to surrounding noise sensitive receivers.

Adherence to noise emissions limits can be demonstrated through noise calculations and noise mapping where appropriate. Noise calculations show that local noise ordinance amenity requirements to control mechanical plant noise emissions from the building can be met at the project planning stage, mutually inclusive with nonacoustic site planning considerations. At the post-occupancy stage, compliance can be demonstrated by noise measurements at the nearest noise sensitive receivers. Local planning authorities usually make local noise ordinance documents publicly available for project noise impact assessments, which provide acoustic amenity criteria for various location types (residential, commercial, recreational, and industrial).

Absorptive Finishes: Strategies to include acoustically absorptive surface finishes, where exposed mass is not a requirement for energy use, should be adopted. Acoustically absorptive floor and ceiling finishes control reverberation and occupational noise levels to reduce distractions and annoyances to occupants. Acoustic finishes also help achieve adequate speech intelligibility within office buildings.

Passive cooling systems such as radiant flooring and chilled beams (exposed thermal mass of ceilings) operate most efficiently as exposed elements in buildings. Therefore, these systems may conflict with the need for acoustically absorptive floor and ceiling finishes. Exposed, acoustically reflective surfaces cause difficulties in controlling reverberation and occupational noise levels and preventing discrete reflections of sound.

The whispering wall effect is an interesting consequence of hard ceiling and wall surfaces in office buildings. In this unusual situation, conversations taking place at one end of an open-plan office area are not necessarily intelligible in adjacent work areas but are intelligible at the far end of the office space. Grazing incidence reflections skim along large, hard flat surfaces across the office space. Absorptive finishes on vertical surfaces including walls, columns, and workstation partitions can minimize the likelihood of annoyance.

Additionally, superimposing articulated surface finishes or profiles on large acoustically reflective surfaces can alleviate focused sound reflections and control the whispering wall effect. Examples include coffered ceiling profiles. These entail repetitive spacing of fin elements on flat ceilings and light fittings on ceilings with elongated geometry to provide relief

CTTC (Cont'd. from Page 10)

from the large areas of flat ceiling surface. Additional strategies include exposed structural elements at the ceiling level to provide sound diffusion and suspension of independent acoustic absorbers between exposed structural elements to minimize annoyance.

Sound Masking: The post-occupancy surveys of USGBC's LEED® accredited buildings highlighted that speech privacy and disturbance due to noise are complaints in buildings with radiant floors and chilled beams.¹ The complaints could be attributed partially to low background noise levels and lack of sound masking required to render conversations and activities unnoticeable. Radiant flooring and chilled beams systems remove the benefits of masking noise provided by traditional fan-assisted ventilation systems.

Background noise levels in office buildings using chilled beams have been reported as low as NC20, or approximately 25 dBA. The low background noise levels reduce open-plan speech privacy. An electronic sound masking system helps in areas where the background noise level from HVAC systems is lower than levels considered useful for masking speech in open-plan work areas.

Natural Ventilation: Natural ventilation, although accepted as a sustainable design strategy, may conflict with the control of ingress of external noise through ventilation openings. Internationally recognized standards^{2,3,4} provide recommended guidelines for internal background noise limits. These international standards generally assume that buildings are sealed and air conditioned to meet the stated recommended indoor noise levels. However, research suggests higher indoor noise levels should be allowed for naturally ventilated buildings than in sealed, air-conditioned buildings.

Research indicates that internal noise levels of up to 65 dBA can be acceptable in naturally ventilated offices.⁵ Surveys carried out by various researchers and summarized and collated by Ghiaus and Allard showed that 55 dBA – 60 dBA is acceptable in open-plan offices.⁶ The surveys also showed that current international noise standards are unnecessarily stringent for naturally ventilated buildings.

Initial research has been carried out as part of an ongoing comprehensive review of acoustic criteria for naturally ventilated buildings.⁷ Results from subjective testing to determine speech intelligibility levels under various background noise conditions indicate that a good speech intelligibility rating can be achieved in offices located in downtown environments with background noise levels up to 59 dBA. In addition, a controlled increase in background noise levels can provide masking noise within the space, a problem previously identified with passive cooling systems. This benefit, however, is dependent on the acoustic character of the external noise being used to provide masking.

Alternative approaches have been offered to quantify an acceptable exceedance in noise level standards already set for sealed, air-conditioned buildings. A simplistic example is an exceedance of the recommended indoor noise levels (e.g., $LA_{eq} + 10$ dB). Sustainable design strategies should demonstrate at the project's design stage that the building design meets the best practice acoustic standards for recommended background noise levels in occupied spaces and satisfies requirements for increased natural ventilation over the same floor area. As a starting point, best practice standards for a project can be established in reference to national standards on internal background noise level limits for various occupied spaces. The 2007 *ASHRAE Handbook—HVAC Applications*, Chapter 47, Sound and Vibration Control, provides guidance on design background noise levels for various types of occupancy in terms of noise criteria (NC) or room criteria (RC) curves. The limits apply to steady-state or quasisteady-state sounds such as noise from air-conditioning systems.

NC curves are commonly used as an alternative to dBA values or RC curves. RC curves are used for the specification of services noise limits. NC curves correlate well with occupant satisfaction in office buildings without excessive levels of low frequency noise or disturbing tonal noises. NC values are defined by a series of curves that give noise level limits in octave bands across the frequency range of human hearing. Because internal noise levels in naturally ventilated buildings can be higher than in sealed air-conditioned buildings, an allowable excess can be applied in each octave band of the chosen NC curve. The allowances in each octave band are dependent on the frequency content of the external noise and the acoustic sensitivity of the occupied space.

Calculations then can be made to predict the expected indoor noise level from external noise ingress via a building façade with openings for natural ventilation. If predictions indicate that the design criterion likely will not be met, an attenu-

CTTC (Cont'd. from Page 11)

ating element, such as an acoustically lined vent or a trickle vent attenuator, can be included in the design. Trickle ventilators facilitate natural ventilation and provide noise attenuation to best practice standards for speech privacy and background noise level limits (either in the building façade or between private offices in buildings). They are becoming increasingly available in the United States. To determine the suitability of such a device for natural ventilation and noise control, the building mechanical engineer can provide the natural airflow requirements with the allowable pressure drop to achieve the minimum airflow. The acoustic engineer can determine whether acoustic performance requirements are satisfied by carrying out the necessary sound isolation calculations to establish the composite transmission loss performance of the façade (or shared partition) with the installed ventilator.

Systems Control: Controllability of systems, including individual and group lighting control and thermal comfort control, promotes productivity and manages building energy use. Control of natural ventilation in mixed mode ventilation systems through operable windows and ventilation slots also allows control over the ingress of external noise. For example, the occupant can decide whether external noise ingress to a naturally ventilated office or meeting room is tolerable to comfortably carry out activities in the space. If not, the windows or ventilation openings can be closed, reducing external noise ingress, and the mixed mode ventilation system changes to a mechanically assisted system.

By introducing a level of individual or group control to noise levels, individual sensitivity to noise can be managed. Although this benefit is difficult to quantify, it is a positive factor in the adoption of natural ventilation in buildings.

Recycled Materials: Materials and resource consumption are obvious considerations for sustainable building design. To a small degree, the lack of recycled material choices with required acoustic properties poses difficulties for acoustic design. In addition, nonfibrous alternatives such as packless silencers and closed-cell foam duct liners are more widely considered as a replacement for traditional fiberglass. These alternatives tend to acoustically perform lower and cost significantly more than fibrous products.

Daylighting: Daylighting, an important sustainable design factor, is achieved with lower partition heights, interior lightshelves and interior glazing. Unfortunately, lower partition heights, lightshelves, and interior glazing do not help to create a low-noise environment for workers seated at open-plan workstations and meeting rooms with glazed walls have little acoustic privacy.

Lower partition and workstation heights lose the acoustic barrier effect, increasing propagation of noise from occupants throughout open-plan offices. Lightshelves, often hard and reflective acoustically, increase discrete sound reflections within the building. For private offices and meeting rooms, glazed walls, used to allow daylight penetration, have lower sound isolation performance (quantified by the sound transmission class or STC) than conventional gypsum wallboard and stud partitions.

Methods used to overcome these issues include glazed workstation partition heads, as well as careful consideration of space planning and occupant layout. Other construction elements, such as transparent or translucent solid wall partition elements, provide higher levels of sound isolation (assisting to achieve best practice standards for speech privacy) and facilitate daylight penetration. In addition, internal fixtures that provide reverberation control (assisting to achieve best practice acoustic standards) and facilitate daylight penetration can be included. Examples include suspended light fixtures incorporating acoustic absorptive materials and lightshelves with an acoustically absorptive finish.

Conclusion: Sustainable design practices have impact on acoustic design and often introduce acoustic design challenges. However, following considerations for sustainable buildings, practical acoustic design strategies can be applied. It is hoped that the discussion provided and the strategies proposed create awareness of the importance of good acoustic design practices in sustainable building design.

Brian Simkins, LEED AP

Chapter Technology Transfer Committee Chair

Article by: Chris Field, Ph. D., September 2008 ASHRAE Journal

Student Activities

The October meeting is Student Activities Night. Please encourage any engineering students to attend. This is a wonderful chance for them to network with the regional engineering committee and to gather insight into the field. As always, please seek out any students attending this meeting and introduce yourself. Involving the students now will lead to active members in the future.

The interaction with students is not limited to colleges. We encourage our members to reach out to their local school district and consider visiting local schools to discuss engineering. This can be as simple as visiting your child's classroom, or presenting a simple engineering experiment to a class. There are various resources to help you with this endeavor. As always, the ASHRAE Student Zone is at www.ashrae.org/students. Another source you may try is www.tryengineering.com, which contains sample experiments and lessons for all ages.



As a reminder, Student Members are sponsored by full-grade Members or Associate Members. The student must be studying or have an interest in an HVAC&R industry-related field. A student eligible for ASHRAE student membership is a person matriculated in an approved course of study in a university, college, junior college, or technical institute, who is being educated in the arts and sciences covered by the Society's objectives. Membership forms are available through me or at online at the Student Zone.

Thomas Fields, PE, LEED AP
Student Activities Committee Chair

Charles Lesniak
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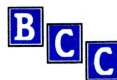
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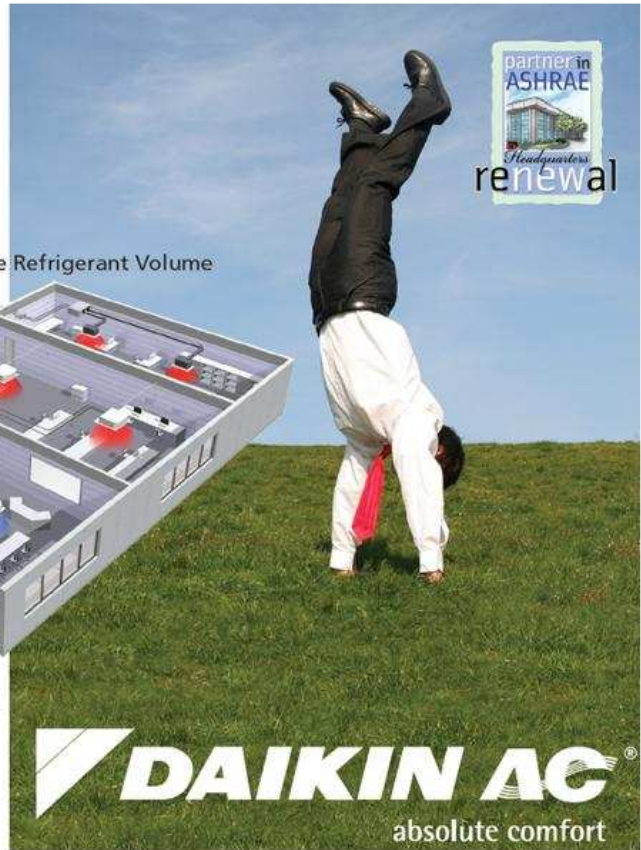
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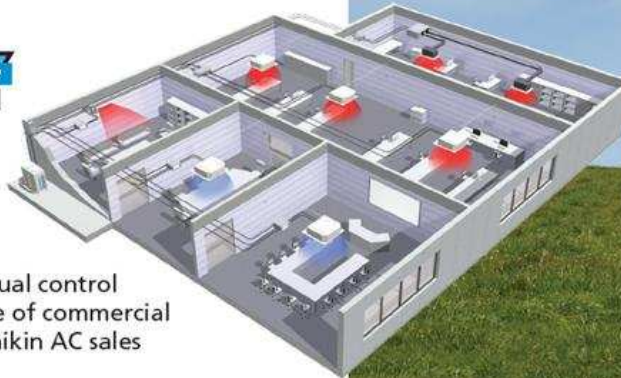
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