

THE LONG ISLAND SOUNDER

June 2009



www.ashraeli.org

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

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

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President's Message

Greetings fellow Ashrae members and business colleagues! Once again our monthly meeting was very successful and well attended. May was designated our Refrigeration Night and the lecture was given by Ashrae Distinguished Lecturer and 1978 Long Island Chapter President Mr. Evans Lizardos, PE together with John Lizardos, PE on the basics of the refrigeration cycle, design and application. We would like to thank them both for this most informative lecture and continued support of the Long Island Chapter of Ashrae.



On another note, our 10th annual Ashrae Long Island Chapter golf outing went off without a hitch after it was previously postponed due to inclement weather. As this function is always our largest fundraiser, it is you, the members of this chapter who continue to support and contribute to maintaining the vitality of this chapter. This year, we managed to raise over one thousand dollars at the outing towards Ashrae Research Promotion. I would also like to thank my golf committee partners Peter Gerazounis, PE and John Nally for their hard work and dedication for this event. We look forward to seeing everyone again next May for this very successful event.

As my Presidency of the Long Island Chapter comes to an end next month, I would like to express my gratitude to the board of governors for all of their efforts this year, as well as the dedicated members, who contribute to the continued success of this great chapter. I have been on the board since 2000 and can say that I have enjoyed every moment going through the chairs and committees, being at the monthly meetings and seeing both familiar and new faces year after year. As my predecessors have done, I will continue to stay involved with the Long Island Chapter and support them as necessary. Going forward, I pass the torch onto Steve Giammona, PE, who has done an outstanding job with our group and as my co-pilot. I have no doubt he will continue the success of this chapter with his enthusiasm and leadership skills. By your vote, welcome Mr. Richard Rosner, PE and Mr. Thomas Fields, PE to the Ashrae Long Island Board of Governors, these gentlemen will be fantastic additions to our Board. Rich has been very active in the chapter helping us to get programs accredited by PIE for continuing education credits while Tom has spearheaded the engineering student mentoring program throughout the high schools and engineering colleges on Long Island.

Some of our chapter highlights for the 2008-09 year include, increased chapter monthly meeting attendance, new members and

CHAPTER MONTHLY MEETING

DATE:	Tuesday, June 9, 2009
TIME:	6:00 PM - Cocktails 7:00 PM - Buffet Dinner
LOCATION:	Westbury Manor South Side of Jericho Tpke. 25 Westbury, NY 11590
FEES:	
Members -	NO CHARGE
Guest -	
Student -	

Reservations requested, but not required.

Call (516) 333-7117

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Long Island Chapter Officers & Committees

ASHRAE 2008/2009 OFFICERS

POSITION	NAME	PHONE	FAX	EMAIL
President	Steven Friedman, HFDP	212.695.1000	212.695.1299	sfriedman@lilker.com
President-Elect	Steven Giammona, P.E.	516.827.4900	516.827.4920	srg@cameronengineering.com
Vice President	Nancy Román	516.568.6509	516.568.6586	nroman@adehvac.com
Financial Secretary	Carolyn Arote	516.568.6550	516.568.6575	carote@adehvac.com
Treasurer	Brian Simkins	203.261.8100	203.261.1981	bsimkins@accuspecinc.com
Secretary	Andrew Manos, LEED AP	631.592.2660	631.630.8883	andym22@optonline.net
Board of Governors	Janeth Costa	631.242.8787	631.242.7084	jcosta@apollohvac.com
Board of Governors	Peter Gerazounis, P.E. LEED AP	212.643.9055	212.643.0503	peter.gerazounis@mgepc.net

ASHRAE 2008/2009 COMMITTEES

COMMITTEE	NAME	PHONE	FAX	EMAIL
Programs & Special Events	Steven Giammona, P.E. Richard Rosner, P.E.	516.827.4900 631.737.9170	516.827.4920 631.737.9171	srg@cameronengineering.com rrosner@csfllc.com
Membership	Carolyn Arote	516.568.6550	516.568.6575	carote@adehvac.com
Chapter Technology Transfer (CTTC)	Andrew Manos, LEED AP	631.592.2660	631.630.8883	andym22@optonline.net
Newsletter Editor	Liset Peña	212.643.9055	212.643.0503	liset.pena@mgepc.net
Resource Promotion	Janeth Costa Andrew Braum, P.E. LEED AP	631.242.8787 516.785.9000	631.242.7084	jcosta@apollohvac.com asb@frigidyne.com
Historian	John Nally	631.331.0215	631.928.4625	jn@atiofny.com
Student Activities	Brian Simkins Carolyn Cammalleri, LEED AP	203.261.8100 212.695.1000	203.261.1981 212.695.1299	bsimkins@accuspecinc.com ccammalleri@lilker.com
Webmaster	Nancy Román	516.568.6509	516.568.6586	nroman@adehvac.com
Nominating	Michael Gerazounis, P.E.	212.643.9055	212.643.0503	michael.gerazounis@mgepc.net
Reception & Attendance	Robert Fuchs	516.612.4322	516.612.4323	rfuchs@alnikmechanical.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, HFDP	212.643.9055 212.695.1000	212.643.0503 212.695.1299	peter.gerazounis@mgepc.net sfriedman@lilker.com

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President Message (Cont'd.)

membership upgrades have increased from the previous year, increased involvement in engineering student mentoring around the Island and we were fortunate to have had three Ashrae Distinguished Lecturers speak to our chapter. The Long Island Chapter continues to be strong throughout region one, currently listed in third place amongst the eleven chapters for PAOE-(Presidential Award of Excellence) as we continue to strive for excellence.

It is my hope that the Long Island Chapter remains strong, all who volunteer their time and attend our meetings continue to support the Long Island Chapter of Ashrae. I look forward to seeing you at our meeting on June 9th for the new officer's installation and Past Presidents night. It will be an open buffet and bar for our members.

Have a safe and enjoyable summer!!

Steven Friedman, HFDP
President - Long Island Chapter

Chapter Monthly Meeting - Program for 2008/2009

September 9, 2008 * At Westbury Manor - 1 PDH  Dinner Presentation - DDC Controls MEMBERSHIP PROMOTION NIGHT	February 2009  NATIONAL ENGINEERS WEEK DINNER
October 14, 2008 * At Westbury Manor - 1 PDH  Dinner Presentation - Condensing Boiler Design STUDENT ACTIVITIES NIGHT	March 10, 2009 * At Westbury Manor - 1 PDH  Dinner Presentation - Energy Recovery Systems RESOURCE PROMOTION NIGHT
November 18, 2008 * At Westbury Manor - 1 PDH  Dinner Presentation - Design/Build of LEED Projects ASHRAE DISTINGUISHED LECTURER DR. TOM LAWRENCE, PH.D., P.E., LEED-AP RESOURCE PROMOTION	April 14, 2009  FIELD TRIP - John Harvard's Brewery
December 16, 2008  Holiday Party - Westbury Manor	May 11, 2009 * Cherry Valley Club, Garden City, NY  ANNUAL GOLF OUTING
January 13, 2009 * At Westbury Manor - 1 PDH  Dinner Presentation - Cooling High Density Heat Loads in Data Centers MEMBERSHIP PROMOTION NIGHT	May 12, 2009  Dinner Presentation - Refrigeration Equipment & Practice ASHRAE DISTINGUISHED LECTURER EVANS LIZARDOS, PE / JOHN LIZARDOS, PE REFRIGERATION NIGHT
January 24-28, 2009  ASHRAE Winter Meeting - Chicago, IL	June 9, 2009 * At Westbury Manor PAST PRESIDENTS & OFFICER INSTALLATION
February 10, 2009 * At Westbury Manor  JOINT MEETING WITH SMACNA Dinner Presentation - Design Build - Executing the Project ASHRAE DISTINGUISHED LECTURER E. MITCHELL SWANN, P.E., LEED AP STUDENT ACTIVITIES NIGHT	June 20-24, 2009 ASHRAE Annual Conference Louisville, Kentucky

August 2009 - Chapter Regional Conference Region I - Albany, NY

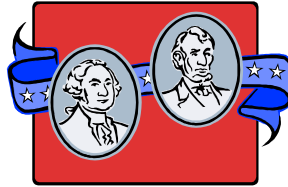
PAOE POINTS FOR 2008/2009

Chapter Members	Membership Promotion	Student Activities	Research Promotion	History	Chapter Operations	CTTC	Chapter PAOE Totals
297	560	705	880	725	1,275	1,150	5,295

June Program

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

**The Long Island Chapter's Year End Celebration
*Past Presidents Night,
 History Night, Student Scholarship Night***



And the Installation of our New Officers



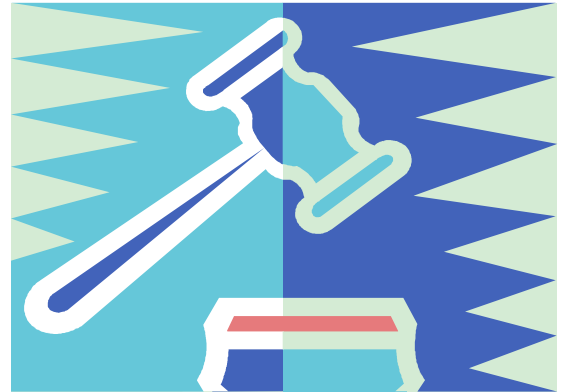
DATE:	TUESDAY, JUNE 9, 2009		
Time:	6:00 PM – Cocktails and Hors D'oeuvres 7:00 PM – Buffet Dinner	Fee:	NO CHARGE
Location:	WESTBURY MANOR (516) 333-7117 Jericho Tpke (South Side), 3/10 of mile east from Glen Cove Rd., Nassau County, NY. Directions are posted at @ www.ashraeli.org. <i>- Reservations requested but not required. Business attire suggested</i>		
Presentation:	Please join us for our ASHRAE year-end meeting celebrating our past presidents and new officers. There will be no charge for our chapter members and guests, and we have arranged for a special buffet dinner and open bar for the evening. Our past presidents will be asked to talk a little about their ASHRAE experience during their board years and we suspect there will be some interesting stories. In addition our historical archives will be on display and the winner of our student scholarship will be present to receive their scholarship check. We will finish off the evening with the installation of our new officers. Please mark your calendar for this special day and join us for some great conversation and excellent food and spirits compliments of the chapter.		

CHAPTER MAY NOT ACT FOR SOCIETY

An International Organization

BOG Meeting Minutes

A meeting of the Board of Governors was held on Tuesday May 12, 2009 at the Westbury Manor. Present at the meeting were Steven Friedman, Steven Giammona, Carolyn Arote, Brian Simkins, Peter Gerazounis and Andrew Manos. President Steven Friedman called the meeting into session at 5:02:



Programs- Steven Giammona discussed confirmation of Committee Chairs for 2009-10 as follows:

Programs	Nancy Roman
Chapter Technology Transfer (CTTC)	Brain Simkins
Historian	Carolyn Arote
Resource Promotion	Andrew Manos
Student Activities	Tom Fields
Webmaster	Anthony Bikowski
Membership	Richard Rosner
Nominating	Michael Gerazounis
Golf Outing	Peter Gerazounis; Steve Friedman; John Nally

Resource Promotion- Janeth Costa has a total of 880 PAOE points. She has also collected a total of \$5,280 towards our year end goal.

Treasurer- Brian Simkins gave a Financial Update. We currently have \$16,3366 in checking account and \$7,998 in the money market account. The Golf outing money was handed to Brian to be deposited in the account.

Membership – Carolyn Arote has a total of 560 PAOE points.

Student Activities- Brian Simkins has a total of 705 PAOE points. Brian Simkins handed out the submitted scholarship applications from students and they were reviewed. It was voted on to issue a \$1000 scholarship to a Hofstra University Student and a \$500 scholarship to a New York Institute of Technology Student.

Chapter Technology Transfer (CTTC)- Andrew Manos has a total of 1150 PAOE points. Andrew also stated all is on track and all the appropriate paper work is being done.

Open Discussion- The Board counted up the votes from the recent ballot and found a unanimous response. All the positions that were put before the general membership were accepted as follows:

President	Steven Giammona
President Elect	Nancy Roman
Vice President	Carolyn Arote
Financial Secretary	Brian Simkins
Treasurer	Andy Manos
Secretary	Janeth Costa
Board of Governors – 1 yr	Richard Rosner
Board of Governors – 2 yr	Thomas Fields
Board of Governors – 1 yr	Steven Friedman

There being no further business to come before the board, the meeting was adjourned at 6:05.

Andy Manos, LEED AP
Chapter Secretary

History - A Decade Gone By

I've been a member of ASHRAE and our chapter for many years but the last ten years in particular are etched in my memory. That's about how long I have been involved as either a chair person, board member or officer in the chapter. I'm no longer an officer or on the board of governors and as of June 30th I am passing the "pen" and archives along to the new chapter historian. When I think about the last ten years a lot comes to mind. Here are a few thoughts that I'll pass on to you.

First, it has been my pleasure and honor to serve our chapter on an official capacity and I thank all our members for their trust and support. My fellow board and committee members have always acted professionally and in the best interest of ASHRAE and our chapter and again it was my pleasure to work alongside them. A lot has happened in the past ten years. I remember the birth of the chapter's now annual golf outing. This was established as a fund raiser to help feed our scholarship fund, ASHRAE Research and augment the operating costs for the monthly meetings. It was and continues to be a successful venture. I remember a chapter picnic on a sweltering summer day at Sunken Meadow State Park with hot dogs, beer, baseball, clowns and my kids covered in ice cream. I remember the only cancellation of a monthly dinner meeting in the past ten years and the very sad conversation I had with the chapter president Mr. Ray Schmitt on that Tuesday of September 11, 2001. I remember the election of the first women in our chapter's history to the board of governors, followed by several other talented ladies. I remember the day of the decision by the board to conserve natural resources and save money by converting the newsletter from paper to electronic mail. I remember the contest to give the newsletter its name "The Long Island Sounder".

I'm sure there are more than a few out there who can remember the successful 2004 CRC meeting our chapter hosted and all the planning that went into it. Let's not forget the changing of the name of the Hotel on the day of the event and the fire alarm episode. I remember the fall off in dinner meeting attendance and the challenge to the board to revitalize our chapter. Better programs, a new format and a new top shelf location reversed the course and made our current dinner meetings a success. I remember the many visits to our chapter by distinguished lecturers, ASHRAE Regional Officers and even the ASHRAE Society President. I remember the lively joint dinner meetings and panel discussions with other local professional organizations. Along the way there have been some excellent chapter field trips, lots of treks to the CRC meetings and the receiving of numerous society and regional awards and honors by our chapter's best. I remember our golden anniversary and the chapter's memorable 50th anniversary dinner cruise.

Most important of all, I remember the many people I have had the good fortune to meet and interact with along the way of this fantastic ride. Be well and have a great summer season.

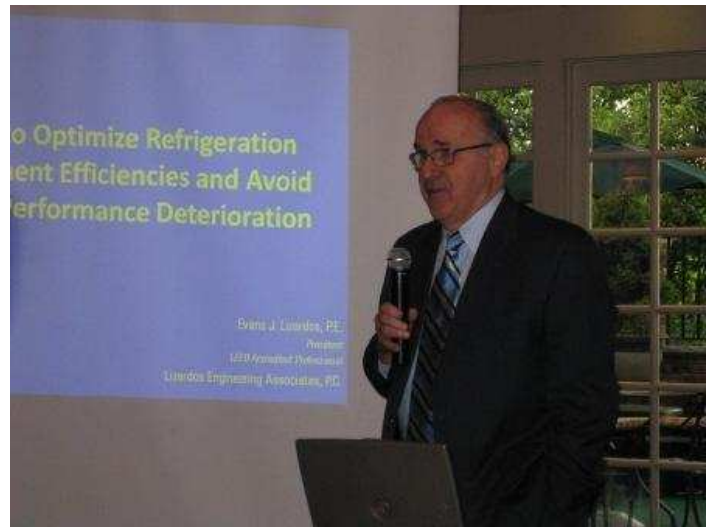
John Nally
Chapter Historian

Membership

This will be my last article as the chairperson for the membership committee. It has been a wonderful 2 years as committee chair, and I am proud to have welcomed so many new members over these terms. This year we have welcomed over 25 new members, which is a great number. Almost every new member not only joined our group but has actively joined meetings and events, such as the golf outing. As I hand over this position to Mr. Rich Rosner I hope that he too finds it as enjoyable as I did. There is always so much to do between seeking out new members and keeping our existing membership happy. I will continue to see you at the monthly meetings, and I hope you all have a safe and happy summer...see you next year!

Carolyn Arote
Membership Chairman

Refrigeration Night Pictures



Research Promotion

As we approach the final month of ASHRAE for this year, I would like to thank everyone who attended the meetings and contributed to Research Promotion this year. I hope everyone has a fun & relaxing summer.

There is still time to donate to ASHRAE for anyone who has not done so yet. We are still very short of our goal this year.

Again, a special 'thank you' to all the contributors listed below whom have already donated to ASHRAE this year:

- Accuspec, Inc.	- Lizardos Engineering Associates	- Mr Jerome T Norris, PE
- Air Distribution Enterprises	- Miller Proctor Nickolas, Inc.	- Mr John D Nally
- Anron Heating & Air Conditioning, Inc.	- Riverside Hydronics	- Mr Kevin F. Beirne
- Applied Technologies of NY	- SMACNA Long Island	- Mr Michael Gerazounis, PE
- Berne & Bob Leventhal, Inc.	- SRS Enterprises, Inc.	- Mr Michael O'Rourke
- Bladykas Engineering, PC	- Ultimate Power	- Ms Nancy Roman
- Brandon Associates	- Mr Andrew S. Braum, PE, LEED AP	- Mr Raymond G Schmitt
- Bush Wholesalers	- Mr Andrew E Manos, LEED AP	- Mr. Rick Gaska
- Chimney Design Solutions	- Mr Brian C Simkins	- Mr Robert A Rankel
- County Fair Air Conditioning Corp	- Mr Claudio Darras,	- Mr Ronald J Kilcarr, PE
- County Pneumatic Controls	- Mr. Donald Ross	- Mr Steven D Friedman, HFDP
- EMTEC Consultants Professional Eng.	- Mr. James R. Tauby, PE	- Mr Steven R Giammona, PE
- KP Professional Engineering, PC	- Ms Janeth Costa	

CONTRIBUTIONS CAN BE MADE IN THREE WAYS:

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

Janeth Costa
Ashrae Research Promotion Chair
c/o Apollo HVAC Corp.
225 North Fehr Way
Bay Shore, NY 11706

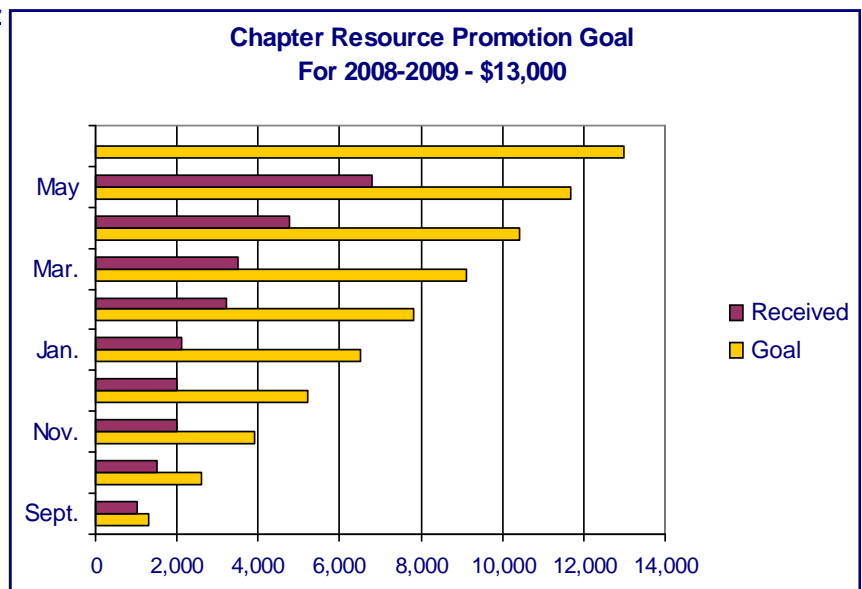
2) You can bring your check to any of the meetings and give it to me. I will mail it into headquarters.

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

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

Thank you again for all your support!

Janeth Costa
Resource Promotion Chair



CTTC

Air Purification to Reduce OA

Buildings require ventilation with outdoor air to maintain a level of indoor air quality that provides a healthy environment for the occupants of the building interior space. In simple terms, carbon dioxide and bioeffluents are generated by building occupants while various gases and particulate matter (PM), some potentially harmful, are emitted by building materials and furnishings, equipment, and cleaning supplies, etc. By exhausting indoor air at an appropriate flow rate and replacing it with clean outdoor air, the concentrations of these occupant-and building material-generated gases can be maintained below objectionable or harmful levels.

ASHRAE Standard 62.1-2007 prescribes outdoor ventilation makeup airflow rates and methods to maintain acceptable indoor air quality in commercial and institutional buildings. Underscoring the importance of maintaining a healthy indoor environment, Standard 62.1 has been adopted by most state and local building codes.

Outdoor ventilation air comes with an energy penalty, including the blower energy required to force outdoor air into the building and exhaust air out of the building, along with the energy needed to cool and dehumidify or heat the outdoor air to indoor comfort conditions.

Standard 62.1-2007 provides two alternate paths to provide adequate ventilation and acceptable indoor air quality.

- The Ventilation Rate Procedure (VRP) is a prescriptive approach with a table of minimum required outdoor airflow rates per occupant for a variety of commercial, institutional, and multifamily residential occupancies.
- The airflow rate per square foot of building floor area is based on the design occupancy density and the required flow rate per person, adjusted to reflect the air-distribution system used.
- The Indoor Air Quality (IAQ) Procedure provides a framework for an engineered approach to providing acceptable IAQ in a particular building. The building design team is responsible for identifying contaminants of concern, likely rates of generation of these contaminants, and acceptable levels of these contaminants; and defining a system and an outdoor ventilation rate that together will maintain contaminant concentration below the maximum acceptable concentrations. Air purification to remove some or all of the contaminants of concern can be part of the system enabling a reduction in ventilation airflow rates from the levels required by the VRP.
- Air purification equipment and technology that can be used is described briefly in the following paragraphs.

Particulate matter cleansing can be achieved with mechanical filters, in which PM is removed from an airstream by capturing it on the filter medium; or electronic, electrostatic, or ionizing filters, in which particles are charged and precipitated out of the airstream. The efficiency of these filters can vary significantly and are generally rated for certain particle sizes at specific flow rates or face velocities. They generally have to be cleaned or replaced to avoid increased pressure drop and/or particle off-loading. PM filters have generally proven to be practical and are commonly installed in HVAC equipment.

Gas-phase adsorbent filters generally use physical adsorption to remove gas phase volatile organic compounds (VOCs) from an airstream. Adsorption occurs when gases bond to surfaces of solid materials via van der Waals forces. Granular activated carbon is the most common adsorption media. Sorbent filters become chemisorbent filters when coated with an agent (e.g., potassium or sodium permanganate) designed to react chemically with VOCs that are less easily physically adsorbed. Sorbent filters generally need to be integrated with fibrous PM filters because the sorbent media alone will typically not remove PM. Adsorbent filter media loses effectiveness and needs to be replaced or regenerated as the adsorption sites are filled with gas phase pollutants.

Cont'd on Page 8

CTTC (Cont'd. from Page 7)

Photocatalytic oxidation (PCO) is an approach to gas-phase air cleaning that uses a monolith reactor coated with a photooxidative catalyst (e.g., titanium dioxide) that is irradiated with ultraviolet light. Simply stated, VOCs interact with the catalyst and the UV light, and the VOCs are broken down into carbon dioxide and water. PCO purification and PCO purification in combination with chemisorbents offer potentially high VOC conversion rates with low pressure drop. However, they generally need to be combined with PM filters, and by some accounts, seem to be more costly than adsorbent VOC filters on both an installed and annual basis.

Two other technologies can be used as alternatives to, or in combination with, air purification to reduce the energy impact of outdoor ventilation makeup air, energy recovery ventilation (ERV) and demand-controlled ventilation (DCV), both of which have been the subject of this column in previous editions of ASHRAE Journal. An ERV exchanges sensible heat and moisture from the incoming outdoor air to the conditioned air being exhausted from the building, reducing the cooling or heating required. It can be used with either Ventilation Rate Procedure, ventilation airflow rates or with reduced airflow rates in a system designed under the IAQ Procedure. DCV, which generally controls airflow as needed to maintain CO₂ (and/or other measureable pollutants) concentration below a maximum level, can be used by itself or in combination with air purification, depending on the generation rate of other contaminants. Buildings with large occupancy variations would tend to realize the most energy savings from DCV.

A final approach that could reduce the amount of outdoor air ventilation required by a building involves pollutant source control. Source control involves selecting building materials, office equipment, and cleaning supplies that have low emission of VOCs of concern.

Energy Savings Potential

The annual energy consumption in the U.S. associated with outdoor air ventilation in commercial buildings is on the order of 1.5 quads, accounting for both blower energy and the energy required to condition the exchanged air. It is suggested that by using available purification technologies, the outdoor ventilation rate in many commercial buildings can be reduced by 50% from levels suggested by Standard 62.1, while still maintaining adequate indoor air quality. This equates to an energy savings potential of approximately 0.75 quads of primary energy less the energy consumed by the purification systems, namely blowers required to overcome pressure drop.

Basic calculations based on general assumptions about purification requirements indicate that purification systems using sorbent and PM filters could consume 10% of the energy that outdoor air ventilation consumes.

Some retrofit air cleaning systems claim the pressure drop through the purification system is less than replaced HVAC PM filters. In these cases, any reduction in ventilation energy could be counted as savings.

Increased energy savings could be realized using the combination of air purification with DCV. Indoor air quality monitoring may be necessary for buildings relying on air purification to meet IAQ requirements because the contaminant removal effectiveness of adsorbents falls over time, and also because of liability concerns related to deviating from standard practices. If IAQ is monitored, controls can then be installed to vary the building or building zone ventilation as needed. If building ventilation equipment is sized to meet building needs at maximum occupancy, then many buildings could realize ventilation energy savings during periods when the building is not at maximum occupancy. Field experience indicates that actual occupancy levels are often 25% to 30% lower and as much as 60% to 75% lower in some buildings than design levels.¹⁰

CTTC (Cont'd. from Page 8)**Market Factors**

The use of air purification equipment to reduce ventilation airflow involves a trade-off between the installed and operating costs of the purification equipment with any offsetting ventilation equipment cost reductions and energy savings.

In general terms, the energy cost of ventilation per unit flow rate of outdoor air is approximately \$1.50/cfm. Based on anecdotal evidence and some costs of packaged ambient air purification system, and assuming a 50% reduction in outdoor air is possible, it seems reasonable that a payback period of less than three years is achievable. Also, if IAQ monitoring is necessary for the purification system, additional savings may be realized by using demand controlled ventilation.

Two other factors to consider in deciding whether to pursue air purification to reduce ventilation airflow rates are green building certification and the effort involved in implementing the IAQ procedure. The LEED® program of the U.S. Green Building Council is the most widely followed green building design certification program. As it currently stands, LEED points are awarded for increasing airflow by 30% above minimum requirements.

The IAQ Procedure places the onus for identifying contaminants of concern, likely rates of generation of these contaminants, and acceptable levels of these contaminants on the building design team. A certain amount of caution is in order when approaching these responsibilities. The science and technology of indoor air quality is complex.

Chapters 12 and 13 of the 2005 ASHRAE Handbook—Fundamentals, “Air Contaminants” and “Odors,” respectively, provide an up-to-date distillation of the current technical knowledge base covering the indoor contaminants that ventilation with outdoor air is intended to mitigate. Together, these chapters cite approximately 200 references.

In Chapter 12, Table 5: “Major Chemical Families of Gaseous Air Pollutants (with examples)” identifies 27 families—six inorganic and 21 organic—of gaseous air pollutants, with between one and seven examples of each. Chapter 12 further defines eight categories of solid, liquid, and complex particulate contaminants. Figure 3 in Chapter 12 plots ranges of particle sizes (from 0.01 microns to 1000 microns) for almost 100 different particles found in indoor environments, ranging from dust to bioaerosols to pathogens.

Some examples of the full range of gaseous and particulate contaminants, some of which are not susceptible to removal by the air purification methods described previously, are: carbon dioxide, carbon monoxide, nitrogen oxides, radioactive gases (particularly radon), bioeffluents and bioaerosols, a range of chemical species that are emitted from building materials and furnishings, a range of chemical species that are emitted from office equipment and other equipment, and a range of chemical species that are emitted from cleaning supplies and other short-term vapor sources introduced into a given indoor space.

In the end, building design teams may conclude that ventilating with comparatively clean outdoor air is a relatively simple and effective way to dilute and exhaust a range of gaseous and particulate contaminants.

Air purification has been used successfully within the framework of the IAQ Procedure to reduce peak and average ventilation rates and save energy. Furthermore, there appears to be potential for considerable additional energy savings. One general category of applications where air purification can be particularly applicable are those situations where the outdoor air quality is poor and considerable particulate and gaseous contaminant removal is needed to make the outdoor air acceptable for indoor use.

Andrew Manos

Chapter Technology Transfer Committee Chair

Student Activities

Congratulations Scholarship Winners!!!!!! It is with great pleasure I get to announce this years AHRARE LI Chapters Scholarship recipients. From Hofstra University we present Mr. Cevan Krause with a scholarship. Cevan comes very highly recommend from his professor Dr. Charles Forsberg, P.E. Cevan is studying Mechanical Engineering and looking to graduate in May 20010. Our next recipient is from NYIT, Mr. Andrew Lambert. Andrew is studying Electrical and Computer Engineering and plans to go on and attain a Masters Degree in Electrical Engineering. Congratulations to our recipients and thank you to all the candidates.

Valuable Resources Our local chapter receives requests for summer internships as well as from employers. Please feel free to pass any opportunities along and we can distribute them for you.

Junior Engineering Technical Society JETS provides programs and resources that let students explore, assess, and experience engineering first-hand. From exciting student competitions to assessment tools and career exploration materials, JETS helps students plan for rewarding futures by showing them how engineering can help them pursue their dreams. Our three-prong approach includes...

Megan Balkovic Senior Director-mbalkovic@jets.org - (703) 548-5387, ext. 102

ACE Mentor Program The ACE Mentor Program, a not-for-profit organization, helps prepare high school students for careers in design and construction. The fastest-growing mentoring program in the building industry, ACE operates in 30 states and 80 cities across the nation. <http://www.acementor.org/717>

Have a great summer and thank you for all you support. I look forward to an even more successful program next year. Please visit: <http://www.ashrae.org/students/> for more information on all the Student ASHRAE activities and opportunities.

Brian Simkins - Student Activities Committee

Carolyn Cammalleri, LEED AP - Vice Chair

I would like to recognize Past President Andrew Braum P.E. in his outstanding presentation to his daughters 4th grade class. Andrew presented on energy efficient upgrades for your home. (See Photo below) Thank you Andrew for your continued support of ASHRAE and your community.



Long Island Chapter - Past Presidents

1958	H. Campbell, Jr. PE	1983	Leon Taub, PE
1959	Clyde Alston, PE	1984	Raymond Combs
1960	Sidney Walzer, PE	1985	Edward W. Hoffmann
1961	Sidney Gayle	1986	Jerome T. Norris, PE
1962	William Kane	1987	Abe Rubenstein, PE
1963	Louis Bloom	1988	Michael O'Rourke
1964	Milton Maxwell	1989	Mel Deimel
1965	Will Reichenback	1990	Robert Rabell
1966	Joseph Minton, PE	1991	Gerald Berman
1967	Irwin Miller	1992	Donald Stahl
1968	Walter Gilroy	1993	Ronald Kilcarr
1969	Charles Henry	1994	Jerald Griliches
1970	William Wright	1995	Walter Stark
1971	Louis Lenz	1996	Joe Marino
1972	Ronald Levine	1997	Norm Maxwell, PE
1973	Henry Schulman	1998	Alan Goerke, PE
1974	Myron Goldberg	1999	Frank Morgigno
1975	John N. Haarhaus	2000	Michael Gerazounis, PE
1976	Richard K. Ennis	2001	Ray Schmitt
1977	Kenneth A. Graff	2002	Steven M. Stein, PE
1978	Evans Lizardos, PE	2003	Andrew Braum, PE
1979	Albert Edelstein	2004	Claudio Darras, P.E.
1980	Ralph Butler	2005	Craig D. Marshall, P.E.
1981	Robert Rose, PE	2006	John Nally
1982	Timothy Murphy, PE	2007	Peter Gerazounis, P.E.

10th Annual LI Chapter Golf Outing



10th Annual LI Chapter Golf Outing



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10th Annual LI Chapter Golf Outing



CRC 2009 - August 27th thru August 29th, 2009

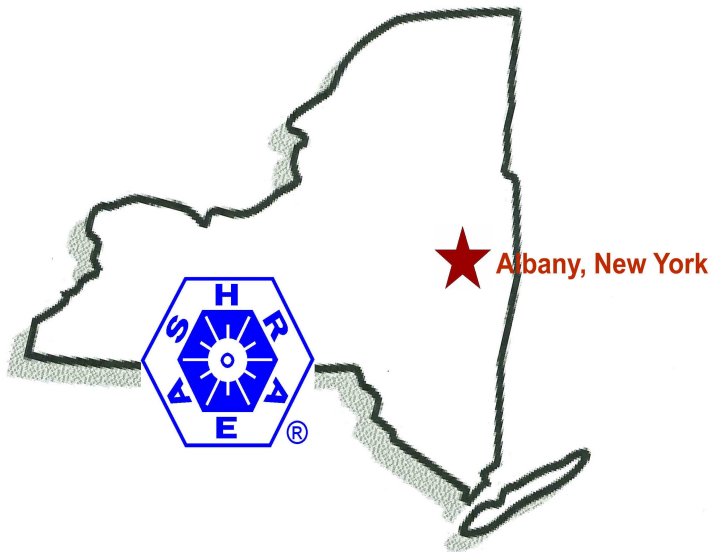
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**Hosted by:
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Albany, NY**



Area Attractions

- New York State Museum
- Saratoga Thoroughbred Race Track
- Saratoga Gaming & Harness Track
- U.S.S. Slater WWII Destroyer
- Half Moon historic sailing ship
- Historic Shaker Village
- Historic Downtown Saratoga
- Lark Street / Pearl Street Club Districts
- Adirondack Mtn. Region
- Historic Saratoga Spa
- Ft. William Henry/Lake George
- Saratoga Battlefield National Park
- Albany Aqua Duck Tours
- Hudson River Cruise
- Albany Pump Station Microbrewery



***August 27th—29th
2009***



CRC 2009 - August 27th thru August 29th, 2009

CRC 2009 Conference Agenda

Thursday, August 27

All Day	Registration
9:30am—2pm	Golf
2:30pm—4:30pm	Tech Session I: Steam Theory and Application
2:30pm—4:30pm	Tech Session II: Nanotechnology
4:15pm—6:30pm	Welcome & 1st Business Meeting
7pm—10pm	*Welcome Reception
10pm	Hospitality Suite Open

Friday, August 28

All Day	Registration
All Day	Hospitality Suite Open
7am—9am	*Breakfast
8am—9:45	Caucus
9:30am—4:30pm	Saratoga Outing for Companions (Lunch not included)
10am—11:45pm	Chapter OPS Workshop
12pm—1:30pm	*Lunch with distinguished lecturer
1:45pm—3:45pm	Executive Session
4:00pm – 5:30pm	2 nd Business Meeting
6pm—8pm	*President's Dinner
8pm—10pm	Casino Night

Saturday, August 29

7:30am—10am	Registration
7am—9am	*Breakfast
8am—9:30am	3rd Business Meeting
9am—11am	Aqua Duck Tour for Companions
9:30am—12pm	Workshops
12pm—2:30pm	*Awards Luncheon

Welcome Reception

Thursday, August 27th at 7 pm

**The Desmond
Hotel & Conference Center**



Please Join us for
Hors d'oeuvres!
Drinks!
Good Times!

For further information please contact:

Stan Westhoff, CRC General Chair
Unilux Advanced Manufacturing
518-344-7490
swesthoff@uniluxam.com

CRC 2009 - August 27th thru August 29th, 2009

Registration Form

Complete one form per family attending

<input type="checkbox"/>	Full Package w/Golf*.....	\$440	\$550
<input type="checkbox"/>	Full Package (no golf)*.....	\$330	\$410
<input type="checkbox"/>	Companion Package w/golf *.....	\$260	\$325
<input type="checkbox"/>	Companion Package (no golf)*.....	\$150	\$190
<input type="checkbox"/>	Children's Package (no golf)***.....	\$130	\$160
<input type="checkbox"/>	One Day Registration**.....	\$205	\$275
<input type="checkbox"/>	Awards Luncheon.....	\$55	\$65
<input type="checkbox"/>	Technical Sessions.....	\$70	\$90

Deadline: July 15th to avoid late fee!

* Includes all meals (see agenda)

** Includes Breakfast and Awards Luncheon (Sat.)

*** For children under 10, includes kids meals

- Children 10 and over will pay the companion rates

- Rollaway beds are \$10 + tax payable to the hotel

Total\$ _____

Name _____

Companion _____

Address _____

City State Zip _____

Phone _____

Email _____

ASHRAE Chapter _____

Chapter Officer _____

Committee Chair _____

Make Checks Payable to:
Northeast Chapter CRC 2009
Mail to:
ASHRAE Northeast Chapter
PO Box 13933
Albany, NY 12212-3933

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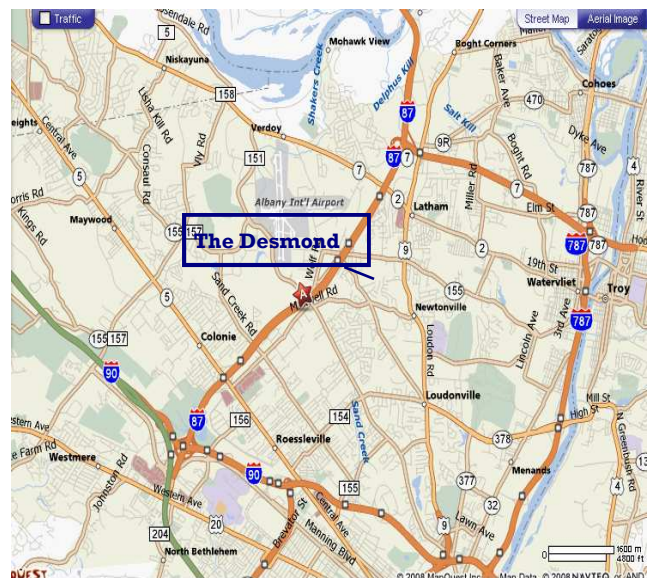
Call (800) 448-3500 to reserve your room.

Special ASHRAE room rate of \$148 per night + taxes

if reserved by **August 6th, 2009.**

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The Desmond is conveniently located off Exit 4 of the Northway I-87 (Albany Airport Exit). From North on I-87- Take Northway (I-87) to Exit 4– Albany Airport exit. On ramp, bear to right. At end of ramp is traffic light, go left onto Old Wolf Road. At the next light, make a right, you will immediately see Desmond on your left. From South on I-87- Take Northway (I-87) to Exit 4– Albany Airport Exit. At the end of the ramp, go left on Wolf Road. At next light, go left onto Albany-Shaker Road, pass under highway and go 200 yds, you will see Desmond on your left.

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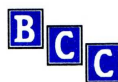
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