THE LONG ISLAND SOUNDER

June 2008

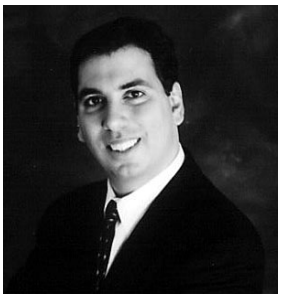
ASHRAE Long Island Chapter, Region 1...*Founded in 1957*

www.ashraeli.org

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

Inside this issue:

President's Message



It's June which means we've made it through another year at ASHRAE Long Island. This month is bittersweet for me. While I will be joining the distinguished group of past presidents who preceded me and enjoying the spare time I will be gaining back, I'll no longer get to look at my pretty face on the cover of this newsletter and take credit for much of the fine work our members do.

Reflecting back on this year, I am proud of the many accomplishments and activities of the chapter. To name a few:

- We celebrated our chapter's 50th Anniversary with a dinner cruise out of Port Washington.
- We held 7 dinner meetings with technical sessions providing 8 PDH credits.
- We held a holiday party in December.
- We held a well attended field trip to the Newsday printing plant in Melville.
- We hosted a very successful golf outing in May.
- We hosted a joint meeting with SMACNA Long Island.
- We published and electronically delivered 10 monthly newsletters keeping our members and friends apprised of our activities.
- We provided another strong year of support towards ASHRAE's Resource Promotion fund which at the time of this printing, I'm happy to say we nearly met our goal with a month to go.

Thanks to the efforts of our board and committee members and the support of our members, sponsors and advertisers, we were able to offer our programs at very reasonable costs while maintaining our treasury finances and still allow the chapter to make a considerable donation to ASHRAE Resource Promotion.

In May, chapter past-president, Ray Schmitt of Daikin AC gave a presentation on Variable Refrigerant Volume and Flow HVAC Systems. We were pleased to arrange for 1 PDH credit for attendance. It is great to have our past leadership continue to support our chapter. We are fortunate to have Ray and so many others set a fine example providing support to ASHRAE even after their obligatory duties were fulfilled. I hope in the coming years I can continue that trend.

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CHAPTER MONTHLY MEETING

DATE:	**Tuesday, June 10, 2008**
TIME:	6:00 PM - Cocktails 7:00 PM - Buffet Dinner
LOCATION:	Westbury Manor South Side of Jericho Tpke. 25 Westbury, NY 11590
FEES: Members - Guest - Student -	NO FEE

Reservations requested, but not required.

Call (516) 333-7117

Long Island Chapter Officers & Committees

ASHRAE 2007/2008 OFFICERS

POSITION	NAME	PHONE	FAX	EMAIL
President	**Peter Gerazounis, P.E.**	212.643.9055	212.643.0503	peter.gerazounis@mgepc.net
President-Elect	**Steven Friedman, HFDP**	212.695.1000	212.695.1299	sfriedman@lilker.com
Vice President	**Steven Giammona, P.E.**	516.827.4900	516.827.4920	srg@cameronengineering.com
Financial Secretary	**Richard E. Gerbe**	718.269.3753	718.269.3598	rgerbe@trane.com
Treasurer	**Nancy Román**	516.256.4800	516.256.3299	nroman@airdist.com
Secretary	**Carolyn Arote**	516.256.4800	516.256.3299	carote@airdist.com
Board of Governors	**Brian Simkins**	203.261.8100	203.261.1981	bsimkins@accuspecinc.com
Board of Governors	**Andrew Manos**	631.592.2660	631.630.8883	andym22@optonline.net
Board of Governors	**John Nally**	631.331.0215	631.928.4625	jn@atiofny.com

ASHRAE 2007/2008 COMMITTEES

COMMITTEE	NAME	PHONE	FAX	EMAIL
Programs & Special Events	**Steven Friedman, HFDP** **Richard Rosner, P.E.**	212.695.1000 631.737.9170	212.695.1299 631.737.9171	sfriedman@lilker.com rrosner@csfllc.com
Membership	**Carolyn Arote**	516.256.4800	516.256.3299	carote@airdist.com
Chapter Technology Transfer (CTTC)	**Andrew Manos**	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	**Steven Giammona, P.E.**	516.827.4900	516.827.4920	srg@cameronengineering.com
Historian	**Richard E. Gerbe**	718.269.3753	718.269.3598	rgerbe@trane.com
Student Activities	**Brian Simkins** **Carolyn Cammalleri**	203.261.8100 631.549.1000	203.261.1981	bsimkins@accuspecinc.com ccammalleri@lilker.com
Webmaster	**Richard E. Gerbe**	718.269.3753	718.269.3598	rgerbe@trane.com
Nominating	**Michael Gerazounis, P.E.**	212.643.9055	212.643.0503	michael.gerazounis@mgepc.net
Reception & Attendance	**Robert Morgigno**	631.331.0215	631.928.4625	rm@atiofny.com
PR & Engineering Joint Council of LI	**Richard E. Gerbe**	718.269.3753	718.269.3598	rgerbe@trane.com
Golf Outing	**Peter Gerazounis, P.E.** **Steven Friedman, HFDP**	212.643.9055 212.695.1000	212.643.0503 212.695.1299	peter.gerazounis@mgepc.net sfriedman@lilker.com

President Message (Cont'd from Page 1)

Speaking of past presidents, in June we have the pleasure of hosting our annual Past-Presidents evening. I hope to finish off the year with our best turnout so please make every effort to come. There is no charge for members that evening. As has become a tradition, we will be holding a trivia contest with prizes. We will also be presenting our student scholarships. And we will be installing our incoming Board of Governors. It is fulfilling to know that I leave it in the good hands of incoming president Steve Friedman and the Board of Governors who I know will continue to serve it well. So as I write this, I get goose bumps thinking how in this one evening, we will be celebrating our chapter's past, present and future.

It has truly been a joy and an honor to serve the chapter and ASHRAE the society.

Peter Gerazounis, P.E. LEED AP
President - Long Island Chapter

Chapter Monthly Meeting - Program for 2007/2008

September 11, 2007 * At Westbury Manor Dinner Presentation - The Fundamentals, Design & Applications of Geothermal Systems - **3PDH**	**February 2008** **NATIONAL ENGINEERS WEEK DINNER**
September 28, 2007 **ASHRAE LI Chapter 50th Anniversary Dinner Cruise** Manhasset Bay Marina	**March 11, 2008** Dinner Presentation - Humidity & Humidity Control - **1 PDH**
October 9, 2007 * *At Westbury Manor* Dinner Presentation - Alternative Dispute, Resolution & Litigation **MEMBERSHIP PROMOTION NIGHT**	**April 8, 2008** **FIELD TRIP - Newsday Plant** **Melville, NY (See April Program Section for Details)**
November 13, 2007 * *At Westbury Manor* Dinner Presentation - Fan Fundamentals/VFD's - **1PDH** **RESOURCE PROMOTION & STUDENT ACTIVITIES NIGHT**	**May 5, 2008** * *Cherry Valley Club, Garden City, NY* **ANNUAL GOLF OUTING**
December 11, 2007 Holiday Party - Westbury Manor	**May 13, 2008** Dinner Presentation - Variable Refrigerant Flow Systems- **1PDH**
January 8, 2008 * *At Westbury Manor* Dinner Presentation - Seismic Design & Application - **1PDH** Joint Meeting with ACCA	**June 10, 2008** * *At Westbury Manor* **PAST PRESIDENTS & OFFICER INSTALLATION**
January 2008 ASHRAE Winter Meeting	**June 2008 - TBD** ASHRAE Annual Meeting
February 12, 2008 * *At Westbury Manor* **JOINT MEETING WITH SMACNA** Dinner Presentation - Design, Construction & Commissioning of LEED Projects - **1PDH - DISTINGUISHED LECTURER** **MEMBERSHIP PROMOTION NIGHT**	

PAOE POINTS FOR 2007/2008

Chapter Members	Membership Promotion	Student Activities	Research Promotion	History	Chapter Operations	CTTC	Chapter PAOE Totals
313	210	390	300	125	590	655	2,270

June Program

You are cordially invited to our June 2008 Meeting…

Long Island Chapter Year End Celebration

"Past Presidents Night" "History Night"

"Student Scholarship Night"

"And the Installation of our New Officers"

DATE:	**TUESDAY, JUNE 10, 2008**		
Time:	6:00 PM – Cocktails and Hors D'ouevres 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.** - ***Reservations requested but not required. Business attire suggested***		
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. We will be having a Long Island Chapter trivia contest with prizes and our historical archives will be on display. The winners of our student scholarships will be present to receive their awards and 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.		

Board of Governors Meeting Minutes

A meeting of the Board of Governor was held on Tuesday May 12th, 2008 at the Westbury Manor. Present at the meeting were Peter Gerazounis, Steven Friedman, Brian Simkins and Carolyn Arote. The meeting was called into session at 5:05 by President Peter Gerazounis.

With a small crew at the meeting the Board did not go through the usual list of items. 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. There were 93 votes counted in total.

The BOG also discussed how to get new members to jump in an help on committees. It was decided that for now each member of the BOG is to talk to members that have to potential and go for it in asking.

The current committees were reviewed and Steve Friedman, President elect, decided he would speak to each chairperson and see if they would continue in the same position for one more year before making changes. This way each position will be filled by a qualified person, and in the next year they would get the chance to start teaching the next chair the ropes.

The Golf outing money was handed to Carolyn to be deposited in the account, and a final accounting was going to be e-mail to the board the following day. All monies were paid up, and no outstanding debts were open. The golf outing was considered a success and a completed task.

Brian Simkins handed out (4) applications from students and they were reviewed. Since not all the board was present it was decided the applications would be e-mailed to each BOG member before a final decision was to be made.

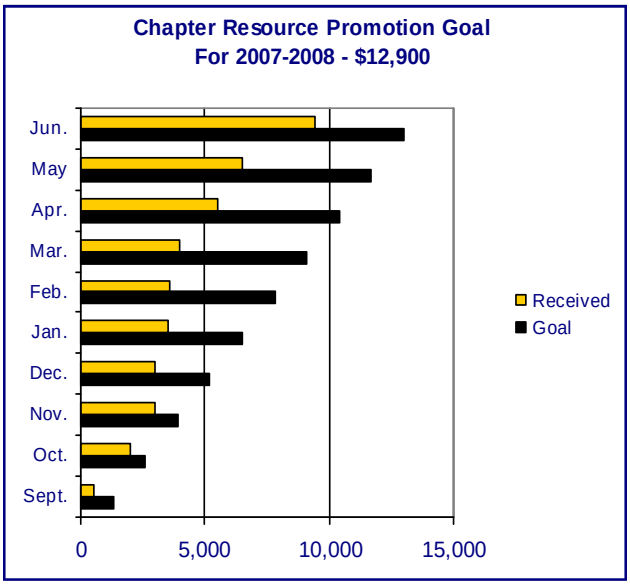
The last discussion was about the job or Reception Chair, since as of this meeting the current receptionist has stepped down.

The meeting was adjourned at 6:05PM

Carolyn Arote
Chapter Secretary

Research Promotion

I would like to thank all of the individuals and companies who have contributed to a most worthy cause. It is invigorating to see the amount of support from those organizations and individuals who have the profession's best interest. On behalf of the Long Island Board of Governors, we thank you for your continued support of ASHRAE. I look forward to seeing all of you at our June meeting and enjoying the summer with friends and family. Thank you to this month's contributors:



SMACN LI
Mr. Yosef Terebelo
Carrier
Mr. Ricky Gaska
County Pneumatic Controls
Mr. Rich Rodgers
Mr. Donald E. Ross
Mr. Andrew S. Braum

Checks can be mailed to:

Mr. Steven Giammona, P.E.
Ashrae Research Promotions
c/o CAMERON ENGINEERING
& ASSOCIATES, LLP
100 Sunnyside Boulevard, Suite 100
Woodbury, NY 11797

Steven Giammona, P.E.
Research Promotion Chairman

Student Activities

Congratulations Scholarship Winners!!!!!! It is with great pleasure I get to announce this years AHRARE LI Chapters Scholarship recipients. Our first recipient is from Holy Trinity Diocesan High School, Hicksville NY Mr. Salvatore Napoli. Salvatore is a Varsity athlete and exceptional scholar he will be attending Binghamton University in the fall and plans to study Engineering. Our second recipient is from Hofstra University, Mr Evan Schierwagen. Evan Graduated this year from Hofstra with a degree in Mechanical Engineering and is looking forward to a very successful future in the industry of HVAC/R. Congratulations to our recipients and thank you to all the other candidates it was not an easy decision you all should be very proud of your accomplishments.

Don't miss other great opportunities Employers, meet students! This ASHRAE program is for business owners and employers to post their available internships, and for ASHRAE student members to search and apply for positions meeting their search criteria! There is no better way for students to gain industry experience! And there is no better way for employers to get the cream of the crop on their staff!

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

Please visit: http://www.ashrae.org/students/ for more information on all the Student ASHRAE activities & opportunities.

Brian Simkins
Student Activities Committee

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'Rouke
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		

Membership

We are pushing for people to upgrade their membership this year. It only takes a few minutes of your time so please fill out the form today. Please go to www.ashrae.org and fill out your application today. Also if you have any friend in the industry you would like to get involved please bring them down to the next meeting. All are welcome, and all it takes is one meeting to see the advantages being a member has to offer.

Carolyn Arote

Chapter Secretary

CTTC - Community-Scale Heating/Cooling/Power Systems

Designing VRF Systems

The main advantage of a variable refrigerant flow (VRF) system is its ability to respond to fluctuations in space load conditions. By comparison, conventional direct expansion (DX) systems offer limited or no modulation in response to changes in the space load conditions. The problem worsens when conventional DX units are oversized or during part-load operation (because the compressors cycle frequently). A simple VRF system, comprised of an outdoor condensing unit and several indoor evaporators, which are inter-connected by refrigerant pipes and sophisticated oil and refriger-ant management controls, allows each individual thermostat to modulate its corresponding electronic expansion valve to maintain its space temperature setpoint.

VRF systems have been used in Asia and Europe for almost twenty-five years. With a higher efficiency and increased controllability, the VRF system can help achieve a sustainable design. Unfortu-nately, the design of VRF systems is more complicated and requires additional work compared to designing a conventional DX system. This article provides guidelines for de-termining the feasibility of a VRF system and discusses the factors that should be considered from initial planning through completion of a project. Although some manufacturers now offer water-cooled VRF systems, this article focuses on air-cooled, split-type VRF systems.

Choosing VRF

In deciding if a VRF system is feasible for a particular project, the designer should consider building characteristics; cooling and heating load requirements; peak occur-rence; simultaneous heating and cooling requirements; fresh air needs; accessibility requirements; minimum and maximum outdoor temperatures; sustainability; and acoustic characteristics.

Building Characteristics

Although manufacturers routinely in-crease the maximum allowable refrigerant pipe run, the longer the lengths of refriger-ant pipes, the more expensive the initial and operating costs. For most VRF units, the maximum allowable vertical distance between an outdoor unit and its farthest in-door unit is approximately 150 ft the maximum permissible vertical distance between two individual indoor units is approximately 45 ft and the maximum actual refrigerant piping lengths allowable between outdoor and farthest indoor units is up to 490 ft.

Building geometry must be studied carefully. The system should not be considered if the expected pipe lengths or height difference exceed those listed in the manufacturer’s catalog. In buildings where several outdoor locations are available for the installation of the outdoor units, such as roof, setback, and ground floor, each condensing section should be placed as close as possible to the indoor units it serves. The physical size of the outdoor section of a typical VRF is somewhat larger than that of a conventional DX condensing section, with a height up to 6 ft excluding supports. Indoor units are available in multiple configurations such as wall-mounted, ceiling-mounted cassette suspended, and concealed ducted types. It is possible to combine multiple types of indoor sections with a single outdoor section.

Building Load Profile

The combined cooling capacity of the indoor sections can match, exceed, or be lower than the capacity of the outdoor section connected to them. An engineer can specify an outdoor unit with a capacity that consti-tutes anywhere between 70% and 130% of the combined indoor units capacities. The design engineer must review the load profile for the building so that each outdoor section is sized based on the peak load of all the indoor sections at any given time. Adding up the peak load for each indoor unit and using that total number to size the outdoor unit likely will result in an unnecessarily oversized outdoor section. Although an oversized outdoor unit in a VRF system is capable of operating at lower capacity, avoid oversizing unless it is required for a particular project due to an anticipated future expansion or other criteria.

Sustainability

One attractive feature of the system is its higher efficiency in comparison to conventional heat pump units. Less power is consumed by the VRF system at part load compared to con-ventional systems, which is due to the variable speed driven compressors and fans at outdoor sections. The designer should consider other factors to increase the system efficiency

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CTTC - Community-Scale Heating/Cooling/Power Systems (Cont'd. from Page 7)

and sustainability. For example, sizing should be carefully evalu-ated and oversizing should be avoided. Environment-friendly refrigerants such as R-410a should be specified. Relying on the heat pump cycle for heating, in lieu of electric resistance heat, should be considered, depending on outdoor air conditions and building heating loads. This is because significant heating capacities are available at low ambient temperatures. (e.g., the heating capacity available at 5℉ can be up to 70% of the heating capacity available at 60℉, depending on the particular design of the VRF system).

Fresh Air Requirements

One of the most challenging aspects of designing VRF sys-tems is the need to provide a separate outside air supply to each unit to comply with ANSI/ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality, and building codes. Most manufacturers offer an outside air kit, for connecting to outside air ductwork. A separate outside air fan and control system is generally required for larger buildings. In humid climates, providing preconditioned outside air to each indoor unit ensures good indoor air quality.

Simultaneous Heating and Cooling

Some manufacturers offer a VRF system capable of providing simultaneous heating and cooling. In those systems, al-though several indoor sections are connected to one outdoor section, some indoor sections can provide heating, while others provide cooling. The prices for those units and their installation are higher than that of cooling- or heat-ing-only units. More economical design can sometimes be achieved by combining zones with similar heating or cooling require-ments together. When zones with different cooling/heating requirements are connected to the same outdoor sec-tion, consider units that are capable of providing simultaneous heating and cooling. Examples of zones that may require si-multaneous heat-ing and cooling when combined are interior and exterior zones; exterior zones with different exposures; and zones requiring comfort cooling with rooms requiring close environmental control.

Minimum Outdoor Air Temperature

Using VRF heat pump units for heating and cooling can increase building energy efficiency, especially when the heat-ing obtained from the heat pump mode replaces an electric resistance heating coil. Most VRF units provide higher heating capacities than conventional DX heat pumps at low ambient temperatures. The designer must evaluate the heat output for the units at the outdoor design temperature. Manufacturers indicate the heating capacities at catalog minimum out-side temperature, after which point, a low ambient kit is sometimes offered as an option. When the outdoor temperature drops below the temperature indicated in the catalog, the heating output from the heat pump cycle decreases. Supple-mental heating should be considered when the heating capacity of the VRF units is below the heating capacity required by the application. Sequence of operation and commissioning must specify and prevent prema-ture activation of supple-mental heating.

Power and Accessibility

Power and accessibility are required for all system compo-nents, including evaporators, outdoor condenser, branch se-lec-tor, and condensate drain pumps (where applicable).

Unit Selection and System Layout

The complete specification of a VRF system requires careful planning. Each indoor section is selected based on the greater of the heating or cooling loads in the area it serves. In cold climates where the VRF system is used as the pri-mary source for heating, some of the indoor sections will need to be sized based on heat-ing requirements. Once all in-door sections are sized, the outdoor unit is selected based on the load profile of the facility. When indoor sections are greatly oversized, the modulation function of the expansion valve is reduced or entirely lost. Most manufacturers offer selection software to help simplify the optimization process for the system's components.

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CTTC - Community-Scale Heating/Cooling/Power Systems (Cont'd. from Page 8)

Installation

The installer must be familiar with the system components and the installation requirements. Refrigerant pipes must remain clean, dry, and leak free. When stored prior to installation, the edges of refrigerant pipes need to be sealed. Nitrogen gas must be used during welding to prevent oxidation of the interiors of refrigerant pipes. A detailed installation manual must be fol-lowed. The installer should be familiar with the control options available for VRF systems. For example, each individual indoor unit can be controlled by a programmable thermostat or a mul-tiple indoor units serving the same zone can be controlled by the same thermostat. Most VRF manufacturers offer a centralized control option, which enables the user to monitor and control the entire system from a single location or via the Internet. Many manufacturers offer courses for installers regarding system installation. Unfortunately, differences in the installation requirements vary greatly between manufacturers, so installers must become familiar with each system.

Commissioning

Additional procedures must be added to the typical com-missioning plan required for unitary air conditioning and heat pump systems. Examples of additional steps are:

- Verification of the proper operation of the electronic expansion valves
- Ensuring thermostats capability of fully modulating their indoor units
- Capability of an outdoor section to provide cooling and heat-ing capacities at extreme outdoor air temperatures
- Self diagnostics features for the system should be checked at various conditions.

When a single VRF system is installed in phases, the entire system should be commissioned upon the completion of the installation.

Operation and Maintenance Manuals

The O&M manuals should include information for all units including wiring diagrams, troubleshooting and preventive maintenance procedures, spare parts, etc. As-built drawings should indicate locations of all system components.

VRF Limitations

VRF systems are not suitable for all applications. Some limitations include:

- There is a limitation on the indoor coil maximum and minimum entering dry- and wet-bulb temperatures, which makes the units unsuitable for 100% outside air applica-tions especially in hot and humid climates.
- The cooling capacity available to an indoor section is reduced at lower outdoor temperatures. This limits the use of the sys-tem in cold climates to serve rooms that require year-round cooling, such as telecom rooms.
- The external static pressure available for ducted indoor sections is limited. For ducted indoor sections, the permissible ductwork lengths and fittings must be kept to a minimum. Ducted indoor sections should be placed near the zones they serve.

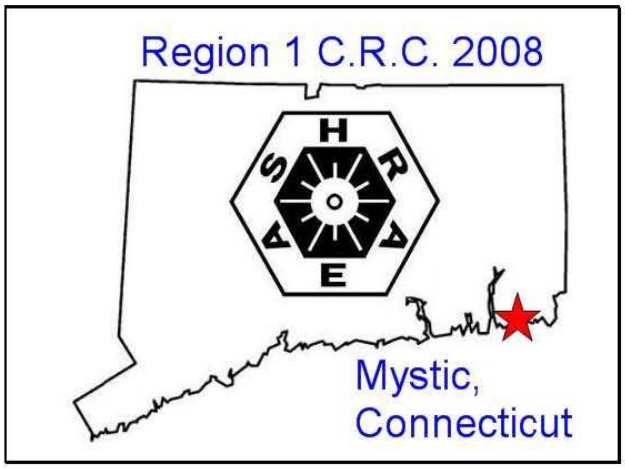
Conclusion

VRF systems offer controls that match the space heating/cooling loads to that of the indoor coil over a range of operation. Variable speed compressors and fans in the outdoor units modulate their speed, saving energy at part-load conditions. Outdoor sections should be sized to match building peak loads, not the sum of the peak load for each zone, reducing the capac-ity of outdoor units when compared to a conventional unitary system. The system offers designers and occupants the ability to choose multiple individualized zones, which improves system controllability. The system capabilities and limitations should be evaluated carefully to determine the suitability of the VRF for a project and to optimize its design.

Andrew Manos
Chapter Technology Transfer Committee Chair

CRC 2008 - Mystic, Connecticut - August 14-16, 2008

The Connecticut Chapter of ASHRAE invites you to join us in historic Mystic Country on the Connecticut shoreline



ASHRAE Region 1

Chapters Regional Conference

August 14th – 16th, 2008

CRC 2008 Agenda

Thursday, August 14th

Registration – Hotel	8 am – 7 pm
Golf Outing – Shenny GC	9:00 am
Hospitality Suite	4 pm – 6:30 pm
1st Business Meeting	4:30 pm – 6:30
Orientation	4:30 pm
Welcome Reception & Dinner, Mystic Aquarium	7 pm – 11 pm

Friday, August 15th

Registration – Hotel	7 am – 7 pm
Breakfast	6:30 am –10am
Caucus	7:00 am
2nd Business Meeting	8:30 am - Noon
President's Luncheon	12:15 pm
1st Technical Sessions	1:45 pm
2nd Technical Sessions	3:45 pm
Hospitality Suite	1:45 pm – 5:30
Banquet & Music	6:00 pm –10pm
Hospitality Suite	10:00 pm –1am

Saturday, August 16th

Registration – Hotel	7 am – 10 am
Breakfast	6:30 am –10am
Executive Session	7 am – 8:15 am
Breakout Workshops	8:30 am –11:45
Hospitality Suite	9 am – Noon
Awards Luncheon	Noon – 2 pm
3rd Business Meeting (if necessary)	2 pm – 4 pm

For further information visit
www.ctashrae.org
or contact
Committee Chair Phil Knowlton
at 860-342-3970
pbknowlton@comcast.net

CRC 2008 - Mystic, Connecticut - August 14-16, 2008

Welcome Reception & Dinner

Thursday Night 7 pm

at the fabulous

Mystic Aquarium

Don't miss it!!

The world famous
Mystic Aquarium
will be reserved exclusively
for ASHRAE CRC attendees.

** Drinks **Hors d'oeuvres
**Dinner **Fun
**Tap-dancing dolphins
(OK maybe not)

It's going to be great!!
Make sure you plan to arrive
by Thursday evening!

CRC Activities

Golf Outing – Shennecossett Golf Course
Thursday, 9:00 a.m.

Welcome Reception & Dinner - Mystic Aquarium
Thursday, 7:00 p.m.

President's Luncheon
Friday, 12:15 p.m.

Technical Sessions
Friday, 1:45 p.m. & 3:30 p.m.

Banquet
Friday, 6:00 p.m.

Awards Luncheon
Saturday, 12:00 noon

Area Attractions

- Mystic Seaport
  (discounted admission)
- Mystic Aquarium
  (discounted admission)
- Institute for Exploration
- Olde Mistick Village
- Foxwoods & Mohegan Sun casinos
- USS Nautilus & submarine museum
- Deep sea fishing
- Ocean Beach Park
- River cruise
- Sea kayaking
- Hiking
- Biking

For more information about area attractions, visit:
www.ctashrae.org/crc08

CRC 2008 - Mystic, Connecticut - August 14-16, 2008

Hotel Accommodations

Hilton Mystic
20 Coogan Blvd.
Mystic, CT 06355
860-572-0731

Make hotel reservations separately.
Special ASHRAE room rate: $159.00 / night, single or double occupancy.

Area airports:
Bradley International, Hartford
T.F. Green, Providence

Directions: I-95, Exit 90.
At end of exit, go south on Rt. 27 (Greenmanville Ave.)
Follow signs to Mystic Aquarium.
Hotel is right across from Aquarium.

Event sponsors:

Carrier
A United Technologies Company

EMCOR
Build. Power. Service. Protect.

Johnson Controls
INGENUITY WELCOME

TRANE

Registration Form

(complete only one form for each member/family attending)

DEADLINE: July 15th – to avoid late Price

Sign up for...	*Price*	*Late price*
Full Package w/ Golf*	**$365.00**	**$465.00**
Full Pkg. No Golf*	**295.00**	**375.00**
Full Companion Pkg.*	**140.00**	**165.00**
Children under 12*	**80.00**	**100.00**
One Day – Member (Fri. Banquet and Saturday meals)	**195.00**	**275.00**
Awards Luncheon	**45.00**	**65.00**

*meals included: Thurs. dinner thru Sat. lunch
Please include a note on **Special Dietary Needs**

Total $_____

Name

Companion name

Address

City State Zip

Phone

Email

ASHRAE Chapter

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