THE LONG ISLAND SOUNDER

June 2010

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

www.ashraeli.org

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

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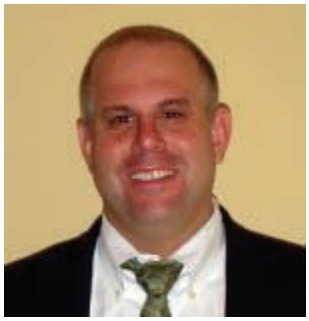
President's Message



Last month we heard from our final featured speaker for 2009-2010. ASHRAE veteran Julian R. de Bullet, director of industry relations for Washington, D.C.-based McQuay International, presented members with an in-depth look into large chilled water system choices and "sustainable" concepts. He highlighted variable primary flow considerations and condenser water heat recovery, and their compliance with green design concepts.

As noted last month, our much anticipated 11th Annual LI ASHRAE Golf Outing has been rescheduled for Monday, August 9th. Please direct any questions to our co-chairs: Steven Friedman, PE, HFDP, LEED AP (212-354-5656, **sfriedman@akfgroup.com**) and Peter Gerazounis, PE, LEED AP (212-643-9055, **peter.gerazounis@mgepc.net**).

If you have not done so recently, please visit our chapter website at **http://www.ashraeli.org**. The site has been revised and now sports a cleaner, sleeker look that emphasizes easier navigation. It is a great resource for all members.

As my term as president comes to an end, my tenure with ASHRAE will continue. I look forward to continuing to learn from and contribute to the chapter. That being said, I'd like to thank the board members, committee members and chapter members, all of whom continue to work synergistically to move our chapter and, as a result, our industry forward. It's been my pleasure to work with each and every one of you for the past several years.

I encourage all members to attend our final chapter meeting for the year on June 8. Past presidents will be recognized and incumbent officers for the 2010-2011 year will be installed. Additionally, ASHRAE Long Island scholarships will be awarded to local students.

Have a safe and enjoyable summer!

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

CHAPTER MONTHLY MEETING

DATE:	**Tuesday, June 8, 2010**
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 CHARGE

Reservations requested, but not required.
Call (516) 333-7117

Long Island Chapter Officers & Committees

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POSITION	NAME	PHONE	FAX	EMAIL
President	**Steven Giammona, P.E., LEED AP**	516.827.4900	516.827.4920	sgiammona@ cameronengineering.com
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Board of Governors	**Steven Friedman, P.E., HFDP, LEED AP**	212.354.5656	212.354.5668	sfriedman@akfgroup.com

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Chapter Monthly Meeting - Program for 2009/2010

September 15, 2009 * At Westbury Manor - **1 PDH** Dinner Presentation - Chilled Beam Systems **MEMBERSHIP PROMOTION NIGHT**	**February 2010** **NATIONAL ENGINEERS WEEK DINNER**
October 20, 2009 * *At Westbury Manor* - **1 PDH** Dinner Presentation - Going Green-Reducing Emissions and Improving Fuel Efficiency in Commercial and Industrial Boiler Applications **STUDENT ACTIVITIES NIGHT**	**March 9, 2010** * *At Westbury Manor* Dinner Presentation - Stack Effect **RESOURCE PROMOTION NIGHT**
November 10, 2009 * *At Westbury Manor* - **1.5 PDH** Dinner Presentation - Introduction to LEED NC Building Commissioning **JOINT MEETING WITH USBGC** **RESOURCE PROMOTION** **MEMBERSHIP PROMOTION NIGHT**	**April 13, 2010** **FIELD TRIP - Wild By Nature Market, Oceanside, NY**
December 8, 2009 Holiday Party - Westbury Manor	**May 3, 2010** * *Cherry Valley Club, Garden City, NY* **ANNUAL GOLF OUTING** **RESCHEDULED FOR MONDAY, AUGUST 9TH, 2010**
January 12, 2010 * *At Westbury Manor* Dinner Presentation - Interpretation of HVAC Systems Test/Balancing Procedures and Reported Data	**May 11, 2010** * *At Westbury Manor* Dinner Presentation - Refrigeration **REFRIGERATION NIGHT** **ASHRAE DISTINGUISHED LECTURER**
February 9, 2010 * *At Westbury Manor* Dinner Presentation - Energy Audits & New ASHRAE Standards **STUDENT ACTIVITIES NIGHT** **ASHRAE DISTINGUISHED LECTURER**	**June 8, 2010** * *At Westbury Manor* **PAST PRESIDENTS & OFFICER INSTALLATION**
February 2010 ASHRAE Winter Meeting	
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	1,280	980	1,610	50	590	640	5,150

June Program

You are cordially invited to our June 2010 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 8, 2010**		
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

On Tuesday, May 11th, 2010, a meeting of the Board of Governors was held at the Westbury Manor. Attendees were: Steven Giammona, Steven Friedman, Carolyn Arote, Brian Simkins, Andy Manos, Richard Rosner and Tom Fields. President Steven Giammona called the meeting into session at 5:02pm.

GENERAL ITEMS: We discussed who is going to the CRC in August. The CRC this year is August 19th thru the 21st. All board members should attend.

RESOURCE PROMOTION: Andy Manos stated that we currently have passed the RP goal and is going for the 'High-Five' award.

PROGRAMS: Nancy Roman discussed having our turn-over meeting on July 13th for all board members. Nancy also attended President-Elect Training.

HISTORIAN: Carolyn Arote has to update the PAOE points.

WEBMASTER: Janeth Costa turned in invoices for Anthony (our webmaster). It was confirmed that Anthony will stay to support the web next year. The new website is up and running and looks great. Janeth has contacted Heather Nowakowski from national to review the website for the possibility of additional points.

TREASURER: Andy Manos gave the board a financial update on Savings/MM accounts.

MEMBERSHIP: Richard Rosner said he currently has 24 new members since July and the 'non-paid' count keeps going down. PAOE points are to be updated monthly for membership promotion.

STUDENT ACTIVITIES: Tom Fields continues to solicit new student members and encourage them to attend our meetings. He also discussed giving out the scholarship(s) this year. He received (4) applications. PAOE points are to be updated monthly for student activities.

CHAPTER TECHNOLOGY TRANSFER (CTTC): Brian Simkins continues to hand out the evaluation forms at every meeting. PAOE points are to be updated monthly for CTTC.

OPEN BOARD DISCUSSION:

The golf outing event has been postponed to August 9th, 2010.

Having discussed all open issues, the meeting was adjourned at 5:49pm.

Janeth Costa
Chapter Secretary, 2009-2010

Research Promotion

I would like to thank all the companies who have participated in the annual 2010 Product Directory of Manufacturers and their Representatives.

The Product Directory has been prepared as a service to all its members and as a service to the local HVAC industry. It will be will be made available to all ASHRAE and non-ASHRAE members at no-cost and can be obtained from our monthly meetings or directly from our web-site.

The Directory is intended to provide better communications between manufacturers and their sales representatives; engineers who specify products; contractors who purchase and install the equipment; and other interested parties. Product Directory listings are not limited to ASHRAE members and the listings are not to be considered as advertising or endorsement by ASHRAE of any product, manufacturer or representative.

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 of which we have already raised $16,115. 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.

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

INDIVIDUALS

Mr Andrew E Manos	Mr Joseph V Marino
Mr Andrew J Garda	Mr Kevin Beirne
Mr Arthur A Huebner	Mr Marcel A Bally
Mr Brian C Simkins	Mr Michael Gerazounis, PE, LEED AP
Mr. Carl E Graber, PE	Mr Michael O'Rourke
Ms Carolyn Arote	Ms Nancy Roman
Mr Christopher M Schwarz	Mr Patrick J Lama
Mr David G Kwalbrun	Mr Peter Gerazounis, PE, LEED AP
Mr David Robert Jendras	Mr Raymond O Combs
Dr. David Shaw	Mr Raymond G Schmitt
Mr Donald E Ross	Mr Richard L Rosner, PE
Mr Fred H Weber	Mr Ricky Gaska
Ms Janeth Costa	Mr Ronald J Kilcarr, PE
Mr Jerome T Norris	Mr Steven D Friedman, PE,HFDP,LEED AP
Mr Jerome A Silecchia	Mr Steven R Giammona, PE, LEED AP
Mr John Evans Lizardos	Mr Thomas Fields, PE
Mr John D Nally	Mr William L Mahon

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Research Promotion (Cont'd. from Page 5)

COMPANIES

Accuspec Inc	Clean Air Company	Mitsubishi Electric
A D E Systems Inc	Daikin US Corp.	MV Controls
Albert Weiss Air Conditioning Products	Dnt Enterprises Inc	PVI Industries- Ft. Worth
Anron Heating & Air Conditioning Inc	EMTEC Consultants Professional Eng	Rathe Associates
A O Smith Water Heaters	Environmental Air Quality	RPG Associates
Air Control Supply	GA Fleet	Siemens Building Technologies Inc
Applied Technologies of NY Inc	Gilbar	SRS Enterprises Inc
ASAP Sales	HTS NY	Taco Inc
Bladykas Engineering P C	INCLICO	Technical Air Systems Incorporated
Building Cooling Systems	J-Mar Controls	Tower Enterprises of NY & NJ
Bush Wholesalers	Leonard Powers Inc	Trane
Captive-Aire Systems Inc	Liebert-Emerson Network Power	Twinco Supply Corporation
Carrier Northeast	Lizardos Engineering Associates PC	Viessmann
Catan Equipment Sales	Mason East Incorported	Wales Darby Incorporated
Cemtrex	Miller Proctor Nickolas Inc	Wallace Eannace Associates
Chimney Design Solutions Inc		

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 Stony Brook University
Campus Planning, Design and Construction
Research and Support Services, Suite 160
Development Drive, Stony Brook, NY 11794-6010

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

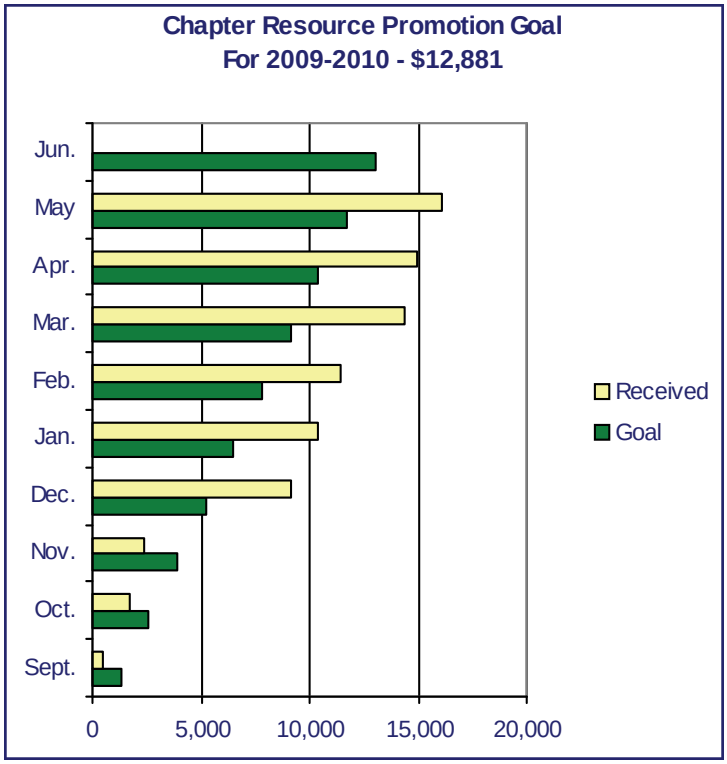
3) You can contribute via paypal from the ASHRAE LONG ISLAND web site just click on the donate button.

4) 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

Nicholas Couture, LEEP AP
Vice Chair



CTTC - Case Against Balancing Valves

Balance valves that make it possible to adjust constant flow systems are often used in variable flow systems, but they waste a great deal of energy. This article describes this energy loss and the calculations for determining the energy consumption of a constant speed chilled-water system and for a similar variable speed system with no balance valves.

Thousands of systems installed today prove that variable volume, variable speed chilled-water systems do not require balance valves. Balance valves in variable volume and variable flow chilled-water systems not only waste energy but make these systems difficult, if not impossible, to control. A previous ASHRAE Journal article1 shows that no reason exists to install balance valves on a variable flow system.

Constant and Variable Flow Systems

Figure 1 is a typical piping sche-matic for a constant speed, constant flow chilled-water system incorporating bal-ance valves and three-way control valves on all terminal loads such as coils and other heat exchangers. *Figure 2* describes a typical variable volume chilled-water system with a bypass valve to regulate minimum flow in the chiller evaporator. The piping installation shown in *Figure 2* costs less than that shown in *Figure 1*.

Energy Loss and Balance Valves

The added piping cost is minimal compared to the cost of energy for the constant flow system shown in *Figure 1*. The total energy cost of balance valves extends beyond the costs associated with losses through the valves themselves. *Figure 3* provides the pump flow and head required for a variable flow system and a similar constant flow system. This example is for an actual 180 ton (633 kW) chilled-water system with a temperature differential of 12°F (7°C) or 2 gpm/ton (0.036 L/(s · kW) for a flow of 360 gpm (23 L/s). Assume that a 200 ton (703 kW) chiller was selected with a flow of 2 gpm/ton (0.036 L/(s · kW) or 400 gpm (25 L/s). *Figure 4* provides similar head and flow data with a 225 ton (791 kW) chiller selected instead. The system then was designed for 225 ton (791 kW) at a flow of 450 gpm (28 L/s) and a total dynamic head of 90 ft (269 kPa) when the 225 ton (791 kW) chiller was selected.

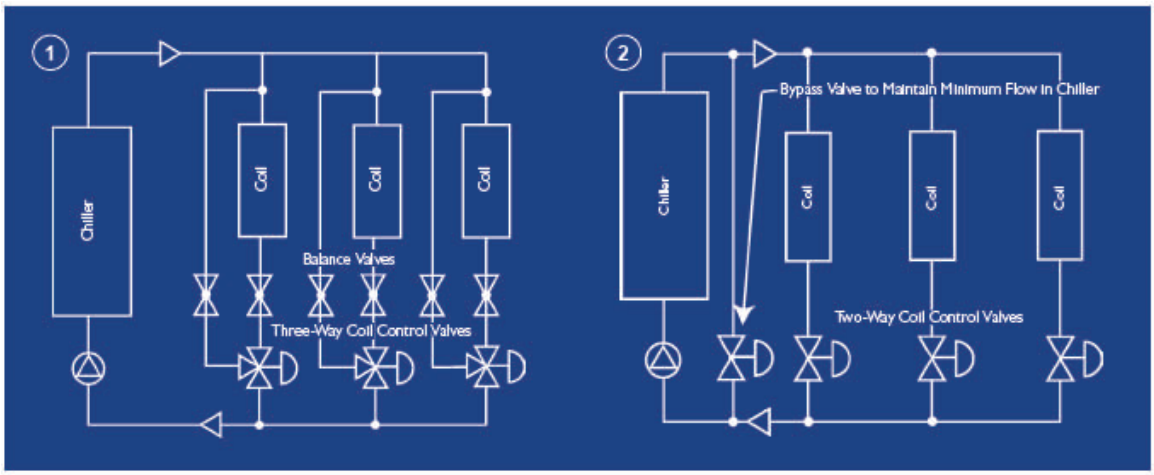


Figure 1 (left): Constant flow system with balance valves. Figure 2 (right): Variable flow system without balance valves.

(DSF) of around 11% for the 200 ton (703 kW) chiller and 25% for the 225 ton (791 kW) chiller. Evaluation of many existing systems have indicated DSFs as high as 50%, resulting in flows and pump heads much higher than the actual operational flow and head. A study of a hotel in California2 showed that a 350 ton (1231 kW) chilled-water system was installed on a 250 ton (879 kW) load for a DSF of 40%. Added capacity is needed for reasons of redundancy and future growth.

One of the great advantages of a properly designed, variable flow chilled-water system is that *the system operates at the actual load on the system, regardless of DSF or allowances for future expansion.* In this

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CTTC (Cont'd. from Page 8)

case, as indicated previously, the actual design flow for the variable flow system is 360 gpm (23 L/s) compared to 400 gpm (25 L/s) for the constant volume system with a DSF of 11% and a second system with a DSF of 25% and a flow of 450 gpm (28 L/s). The overall DSF is a summation of all other safety factors such as diversity, load, and friction.

Constant Flow and Variable Flow Systems Operation

Most existing constant flow systems use three-way coil con-trol valves as shown in *Figure 1*. This is the system that is used in this evaluation of constant flow systems.

Figures 3 and *4* show a pump flow-head curve, a system head curve for a variable flow system, and a point of operation for a constant flow system. The design points are shown as 400 gpm (25 L/s) at 70 ft (209 kPa) head and 450 gpm (28 L/s) at 90 ft (269 kPa), respectively. The point of operation for all three systems is 360 gpm (23 L/s) because that is the actual maxi-mum flow required for each. The difference between the point of operation and the design flow is the flow reduction achieved through the use of balance valves on the constant flow systems.

Compare these points of operation for the constant flow system to the path of operation of a properly designed vari-able flow, variable speed system. In this case, the setpoint required at the controlling differential pressure transmitter is 10 ft (30 kPa). This is the head required for the branch with the highest pressure drop.

The path of operation is on the uniform system head curve for the variable flow system. The system will never reach the design points for the constant flow systems because no requirement exists in the system for these high flows and heads.

Energy Waste of Balance Valves

The energy waste of balance valves is due to their use being based upon constant flow in a system that has a variable load. The system operates at 360 gpm (23 L/s), regardless of the cool-ing load using much more energy than the vari-able flow system shown in *Figures 3* and *4*. The following energy calculations are based upon a chilled-water system that operates from March to October for an annual operation of 5,880 hours.

The same equation for brake horsepower is used for constant and variable speed pumps. The basic equation is:

$$\text{pump horsepower} = \frac{\text{gpm} \times \text{ft of head}}{3{,}960 \times \text{pump efficiency as a decimal}} \quad (1)$$

Pump kW for a constant speed pump

$$\frac{\text{pump horsepower} \times 0.746}{\text{motor efficiency as a decimal}} \quad (2)$$

Pump kW for a variable speed pump

$$\frac{\text{pump horsepower} \times 0.746}{\text{wire-to-shaft efficiency as a decimal}} \quad (3)$$

The data in this article assumes that the chiller plant is cooled by this chilled water. If not, then the efficiency of the mo-tors and variable speed drives must be deducted from the calculations.
The calculation of the energy consumption for the constant flow systems is simple since the pump always operates at one point, 360 gpm (23 L/s) at 73.5 ft (220 kPa) head for the system with an 11% DSF and 360 gpm (23 L/s) at 100 ft (299 kPa) head for the system with a 25% DSF. The annual energy consumption for the constant flow system with an 11% DSF is 40,219 kWh and 57,211 kWh for the system with a 25% DSF. These values were determined using high efficiency motors with 0.8 kW (1.07 kW/kW) per brake horsepower or 92% efficiency.

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CTTC (Cont'd. from Page 9)

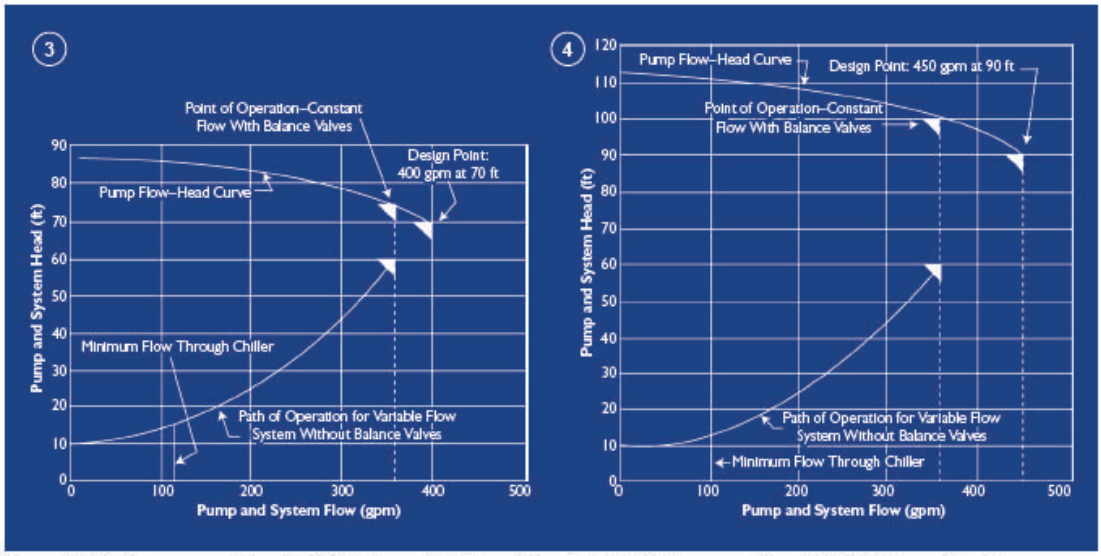

Figure 3 (left): System operation with 11% design safety factor. Figure 4 (right): System operation with 25% design safety factor.

The calculations for the energy consumption of the variable flow system are much more complex since they must be made at 10 points on the system head curve along with the extra energy that is consumed by minimum flow through the chiller.

Tables 1 and *2* describe these calculations with data secured from the pump flow-head curves of *Figures 3* and *4*. The wire-to-shaft efficiencies and percent of load in Columns E and G are from the authors' experience with variable primary pumping systems. The pump energy for maintaining minimum flow in the chillers for the values up to 108 gpm (7 L/s) must be added to the total kW in *Tables 1* and *2*. This energy consumption is not great since the flow and head are at minimums. The calculation for this energy reveals that the energy to be added is 264 kWh for the 11% DSF system and 325 kWh for the 25% DSF system.

The energy totals are 12,142 kWh for the variable flow system with the 11% DSF and 13,528 kWh for the system with a 25% DSF. If you subtract these totals from those for the constant flow systems, you get 27,813 kWh saving or 68% for the 11% DSF system and 43,358 kWh or 76% for the 25% DSF system. A summary of actual annual measurement and verification on a large 24/7 hotel facility in California is available in Reference 2. Interestingly, the net pump energy savings by eliminating bal-ance valves and incorporating variable speed pumps was 80%.

The earlier figures are for pumping energy alone and do not include the thermal equivalent of the pumping. An estimate for this energy is achieved by multiplying the energy lost in kWh by 3,413 Btu (3600 kJ), the heat content of a kWh and dividing by 12,000 Btu (12 660 kJ), the heat content of a ton of cooling. If the overall production of a ton of cooling requires 0.9 kW/ton (0.256 kW/kW) in the chiller plant, the added savings for the 11% DSF system would be 7,119 kWh for a total of 37,408 kWh and 11,099 kWh for a total of 54,457 kWh for the 25% DSF system.

These totals are almost unbelievable, since a combination of energy saved in pumping and in the chiller plant is almost equal to the total energy of the pumping for the constant flow system. Since these savings are for a 180 ton (633 kW) system operating 5,880 hours per year, if you divide the savings by these two figures, you achieve a kW/ton figure of 0.035 and 0.052 (0.01 kW/kW and 0.015 kW/kW), respectively. This provides us with a simple number that can be used to estimate quickly whether a system should be evaluated for replacing three-way valves and constant speed pumps with a variable volume system.

If we round off these numbers to 0.04, we can proceed to make a quick estimate for a larger system. For example, a 5,000 ton (17 585 kW) system operating 7,000 hours/year, the rough savings is 1.4 million kWh per year. If the electrical rate is $0.12/kWh, this amounts to $168,000 per year. This is a hypothetical case, but the procedures used here can be used to evaluate any existing chilled-water system.

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CTTC (Cont'd. from Page 10)

Assume that 20,000 chiller plants were in the U.S. at the end of 2008 and that these plants had a capacity of 16 million tons (5 627 200 kW). If we also assume that half of these plants are still constant flow with three-way coil valves and balance valves operating around 5,000 hours per year, with an overall savings factor of 0.04 kWh per ton/hour, the savings in electric generat-ing plant capacity would be 320 MW and 1.6 million MWh in energy consumption. These are just gross estimates. However, are they not huge enough to encourage us to (1) stop designing variable flow systems with balance valves and constant speed pumps and (2) search for existing chilled-water systems to find those that are candidates for conversion to variable flow systems without balance valves?

A	B	C	D	E	F	G	H
System Flow (gpm)	Pump Total Dynamic Head (ft)	Pump Efficiency (%)	Pump rpm	Wire-to-Shaft Efficiencies (% kW)	Input kW	Annual Load (%)	Annual kWh
36	10.5	58.0	613	56.0	0.29	3.2	55
72	12.0	70.5	662	60.0	0.52	6.5	197
108	14.5	78.0	739	64.0	0.79	12.0	558
144	18.0	80.0	841	70.0	1.16	18.1	1,239
180	22.5	81.0	951	75.0	1.68	19.3	1,911
216	28.0	81.2	1,078	79.0	2.38	17.9	2,507
252	34.5	81.6	1,203	82.4	3.27	11.4	2,190
288	42.0	81.7	1,332	85.0	4.40	7.1	1,834
324	50.5	81.9	1,466	87.0	5.80	3.4	1,160
360	60.0	81.9	1,601	88.2	7.55	1.1	491
					Totals	100	12,142

Table 1: Variable flow energy consumption with 11% design safety factor.

A	B	C	D	E	F	G	H
System Flow (gpm)	Pump Total Dynamic Head (ft)	Pump Efficiency (%)	Pump rpm	Wire-to-Shaft Efficiencies (% kW)	Input kW	Annual Load (%)	Annual kWh
36	10.5	47.0	545	52.0	39	3.2	73
72	12.0	63.0	588	54.5	64	6.5	243
108	14.5	68.0	657	60.0	97	12.0	684
144	18.0	73.0	749	65.0	1.38	18.1	1,468
180	22.5	76.0	845	69.0	1.95	19.3	2,213
216	28.0	77.0	958	75.0	2.64	17.9	2,780
252	34.6	78.0	1,070	79.0	3.56	11.4	2,385
288	42.0	78.5	1,200	84.0	4.63	7.1	1,931
324	50.5	78.5	1,320	85.0	6.19	3.4	1,238
360	60.0	79.5	1,452	87.0	7.89	1.1	513
					Totals	100	13,528

Table 2: Variable flow energy consumption with 25% design safety factor.

Conclusions

Design chilled-water systems with variable speed pumps, high performance two-way coil control valves, and no balance valves. The coil control valves must have a high shut-off pres-sure, a broad turn-down range, and at least a Level V bubble test in accordance with ANSI Standard 70-2-2003, *Control Valve Seat Leakage*.

If you have a chilled-water system with three-way coil valves and balance valves, consider converting it to a true variable vol-ume system. Do a quick check by securing the annual number of hours of operation and the actual tons of cooling for your system. Multiply these two figures by 0.04 kW/ton (0.14 kW/kW) to get an estimated annual savings in kWh for converting to variable flow and opening the balance valves wide. Multiply your annual savings in kWh by your composite electrical rate to get a rough estimate of your annual monetary savings. This number will help you decide whether you should do an intensive study of your system for conversion to variable flow.

Brian Simkins
CTTC

Article In: - ASHRAE Journal, July 2009. Please see article for all references and credits.
By Gil Avery, P.E., Fellow/Life Member ASHRAE; and **James B. (Burt) Rishel, P.E.,** Fellow/Life Member ASHRAE

Membership

This will be my last article as the chairperson for the membership committee. It has great working with you as my first committee chair position with ASHRAE, I am proud to have welcomed so many new members. Almost every new member not only joined our group but has actively joined in at meetings and events. As I hand over this position to Mr. Thomas Fields 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!

Richard L. Rosner, PE
Membership Chairman

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o Full package with Golf… ….	$360	$450
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Note: Transportation Cost for Friday Wine Tour TBD

Full Package includes light lunch (golf only), reception and dinner Thursday, breakfast/lunch/dinner cruise Friday, breakfast/awards luncheon Saturday

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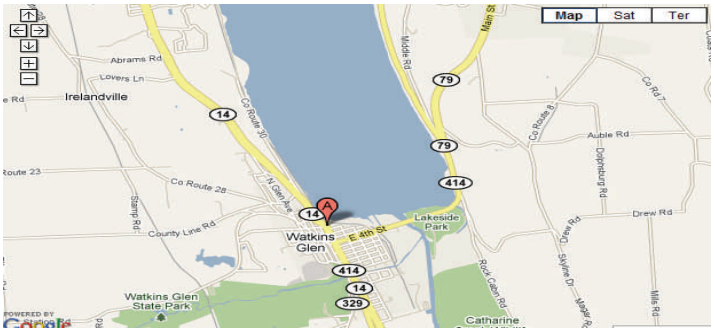
AFTER JUNE 30, standard room rate of $325 will apply, so please make your reservations early!
Please note: According to standard practice, credit cards will be charged for the first night at the time reservation is booked.



From The West: 1-90East NYS Thruway, Exit 42 Geneva/Lyons to RT-14 south (~40 miles), becomes Franklin Street, hotel is on the left.

From the East (Albany): I-90West NYS Thruway, Exit 25A Schenectady/Binghamton/Rt-7 to I-88. I-88 W becomes I-81 south, merge onto NY RT-17W , Exit 52B Watkins Glen/RT-14N (~17 miles), becomes Franklin Street, hotel is on the right.

Interested in alternate area hotels?
Camping? ashraeregion1crc@gmail.com

2010 Region I Summer Dinner - Sunday, June 27, 2010

Please join us for the 2010 Summer Region 1 dinner!

High Finance Restaurant

More info on the restaurant is available here: http://www.sandiapeakrestaurants.com/highfinance/

Please be at the Tram Lift ($13 - included in the $50 cost!) by 5:30pm. The Tram holds up to 50 and it runs about every 20 minutes.

If you wish to carpool to The Peak via a shared taxi or with your rental car, please let me know in your RSVP, & I'll put people together. Please RSVP by June 22, 2010, via the link below.

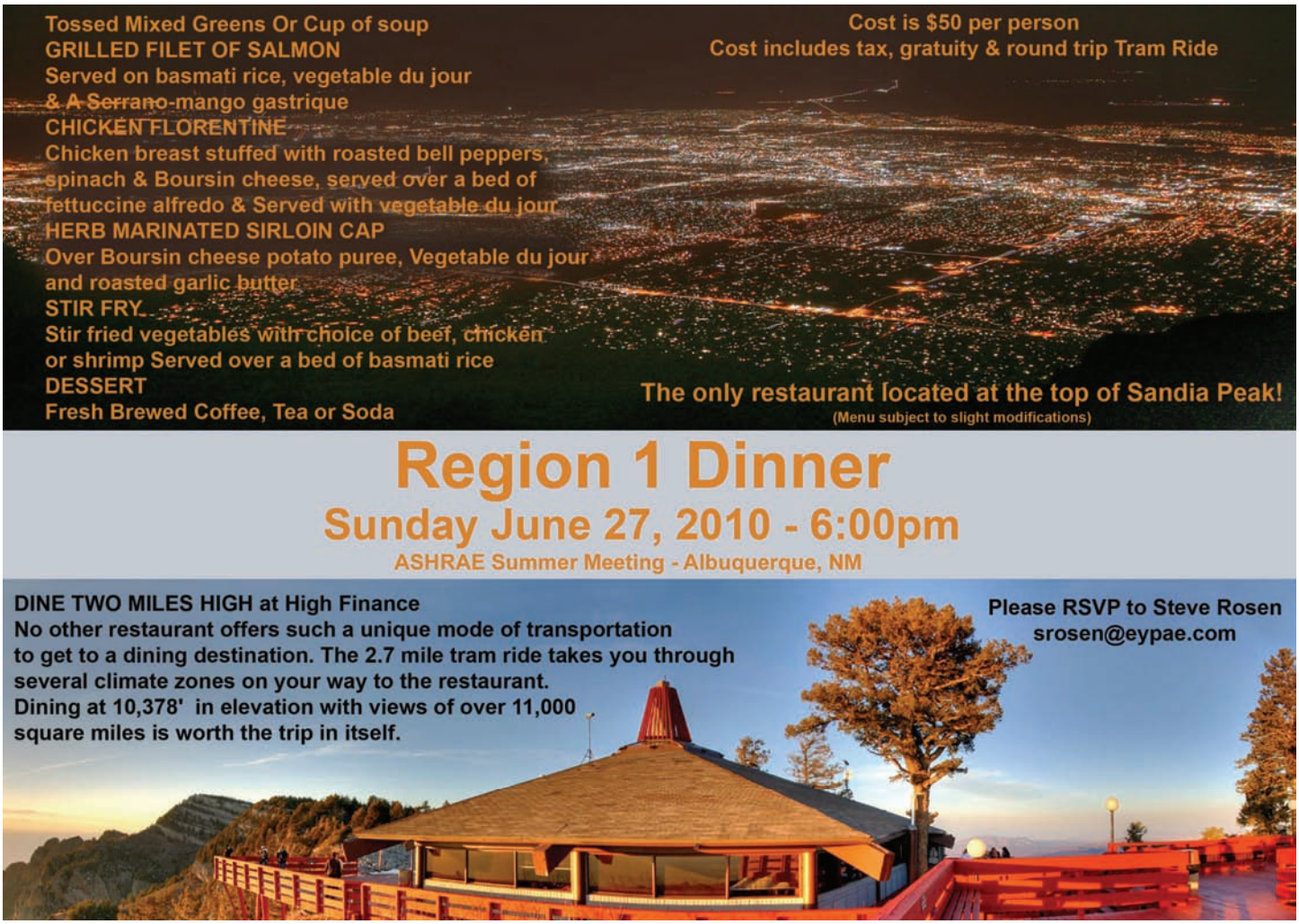
R.S.V.P. Today

Thanks!
Steve Rosen

Directions:

FROM I-40
Exit 167: Tramway Blvd., take Tramway Blvd.
North approximately 9 miles to Tramway Rd.
Take Tram to The Peak where High Finance is located.

FROM I-25
EXIT 234: EXIT 234 Tramway Road.
Follow Tramway Road,
East to the Sandia Peak Tramway.
Take Tram to The Peak where High Finance is located.



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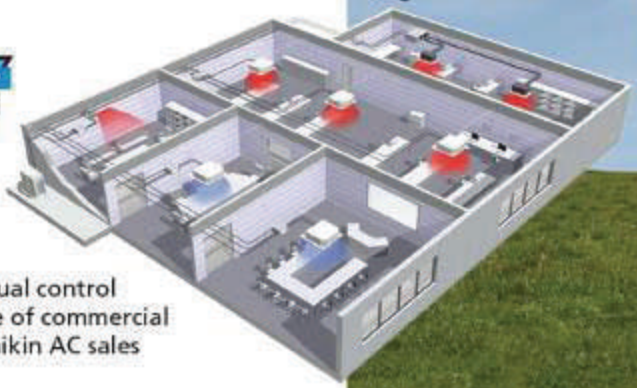

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