



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

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President's Message

Welcome to the January issue of the "Long Island Sounder" and a Happy New Year to all! We thank all those who attended last month's Holiday Party. It was great to see so many of you. We all managed to get in the holiday spirit, even though the weather was spring like.



This month's meeting we will have two excellent presentations. Evans Lizardos will be presenting Session II of our "Back to Basics" on "The Rise of Variable Flow Primary and the Fall of Primary/Secondary/Tertiary Pumping Systems." Following Evans we have ASHRAE Distinguished Lecturer Mark M. MacCracken presenting on "Energy Storage: A Vital Ingredient in a Low Carbon Future." Both of these presentations are PDH approved.

If you haven't contacted Andrew Dubel and placed your ad in the 2016 Product Directory please do so. The deadline is January 15th. Please hurry before it is too late as he is going to press soon.

Next month is Engineers Week. Engineers Week celebrates us—engineers, engineering students, and technicians—and all of the amazing things we do every day to make the world a better place. Our local EJCLI chapter will be having a one day seminar in February 11 with multiple opportunities to gain PDH credits. Their calendar can be seen online at <http://www.ejcli.org>.

CHAPTER MONTHLY MEETING

DATE:	Tuesday, January 12, 2016
TIME:	6:00 PM - Cocktails/Dinner 6:30 PM - Back to Basics #2 7:00 PM - Dinner Presentation 8:45 PM - Conclusion
LOCATION:	Westbury Manor 1100 Jericho Tpke. Westbury, NY 11590
FEES:	
Members -	\$45.00
Guest -	\$50.00
Student -	\$15.00

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

The ASHRAE Winter Conference and AHR Expo is on January 23-27, 2016, in Orlando, Florida. The ASHRAE Learning Institute will offer 20 courses during the conference. If you are interested in attending the conference and any of the courses, please visit www.ashrae.org/orlando. Both the Winter Conference and the AHR Expo are excellent resources, and great ways to see what is new in HVAC&R.

On behalf of ASHRAE LI, I want to thank all the members that donated towards Rich Rosner as he undergoes his treatment. I know that Rich was touched by your generosity. Through your efforts we were able to raise over \$1,700 for Rich and his family. We all wish Rich the best and hope that we will see him soon.

Thank you to all the volunteers and board members, I appreciate all your time and dedication to our chapter and community. I look forward to seeing everyone at the January meeting and thank you for your continued support of the Long Island Chapter of ASHRAE.

Thomas J. Fields, P.E., LEED AP
President - Long Island Chapter

Long Island Chapter Officers & Committees

ASHRAE 2015/2016 OFFICERS

POSITION	NAME	PHONE	FAX	EMAIL
President	Thomas Fields, P.E., LEED AP	212.643.9055	212.643.0503	president@ashraeli.org
President-Elect	Charles Lesniak, P.E			president_elect@ashraeli.org
Vice President	Don Kane, P.E.	631.737.9170	631.737.9171	vice_president@ashraeli.org
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Treasurer	Richard Halley	718.269.3809	718.269.3725	treasurer@ashraeli.org
Secretary	Frank Paradiso	631.632.2791	631.632.1473	secretary@ashraeli.org
Board of Governors	Ken Mueller	201.395.3761	763.231.6924	bog1@ashraeli.org
Board of Governors	James Hanna	718.269.3768	718.269.3794	bog2@ashraeli.org
Board of Governors	Bill Artis	201.395.3750		bog3@ashraeli.org
Board of Governors	Richard Rosner, P.E.	631.737.9170	631.737.9171	BOG4@ashraeli.org

ASHRAE 2015/2016 COMMITTEES

COMMITTEE	NAME	PHONE	FAX	EMAIL
Programs & Special Events	Charles Lesniak, P.E			programs@ashraeli.org
Membership	Ken Mueller	201.395.3761	763.231.6924	membership@ashraeli.org
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Grassroots Government Activities Committee	Charles Lesniak, P.E			ggac@ashraeli.org
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Historian	James Hanna	718.269.3768	718.269.3794	historian@ashraeli.org
Student Activities	Richard Halley	718.269.3809	718.269.3725	sa@ashraeli.org
Chapter Regional Conference Committee	Richard Halley	718.269.3809	718.269.3725	crc@ashraeli.org
Young Engineers in Training	Frank Paradiso	631.632.2791	631.632.1473	yea@ashraeli.org
Webmaster	Richard Rosner, P.E.	631.737.9170	631.737.9171	web@ashraeli.org
Nominating	Michael Gerazounis, P.E., LEED AP	212.643.9055	212.643.0503	nominating@ashraeli.org
Reception & Attendance	Bill Artis	201.395.3750		reception@ashraeli.org
PR & Engineering Joint Council of LI	Andrew Manos, LEED AP	631.632.2791	631.632.1473	pr@ashraeli.org
2014 CRC Committee	Richard Halley	718.269.3809	718.269.3725	CRC@ashraeli.org
Golf Outing	Peter Gerazounis, P.E., LEED AP Steven Friedman, P.E., HFDP, LEED AP	212.643.9055 212.354.5656	212.643.0503 212.354.5668	golf@ashraeli.org

ASHRAE LI, P.O. Box 79, Commack, NY 11725

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Chapter Monthly Meeting - Program for 2015/2016

September 8, 2015 * At Westbury Manor  Dinner Presentation – Commissioning Considerations for VRF Systems Presenter: Bill Artis **1 PDH**	February 2016 NATIONAL ENGINEERS WEEK
October 20, 2015 * At Westbury Manor  Dinner Presentation— “Dr. Duct Tape” Presenter: Max Sherman, PhD **1 PDH** ASHRAE DISTINGUISHED LECTURER <i>Back to Basic Session I -</i> **1 PDH** <i>“Selecting and Designing Refrigeration Equipment Component Packages”</i>	March 8, 2016 * At Westbury Manor Dinner Presentation— TBA Presenter: TBA **1 PDH** Joint meeting with LI-Geo YEA Night <i>Back to Basic Session III –</i> **1 PDH** <i>“Design & Theory of ”</i>
November 10, 2015 * At Westbury Manor  Dinner Presentation-- Phenolic Duct Construction Standards Presenter: Eli P. Howard, III **1 PDH** Resource Promotion Night Joint meeting with SMACNA Student Activities Night & YEA Night as well as Membership Promotion and Upgrade Night	April 12 , 2016 (5 PM) ANNUAL FIELD TRIP . **1 PDH** Dinner to follow at a local Restaurant
December 8, 2015 * At Westbury Manor  HOLIDAY PARTY Free Buffet Dinner for Members	May 12th, 2016 * Cherry Valley Club, Garden City, NY ANNUAL GOLF OUTING
January 12, 2015 * At Westbury Manor Dinner Presentation– Energy Storage: A Vital Ingredient in a Lower Carbon Future Presenter: Mark M. MacCracken, P.E., Pte. LEED Fellow **1 PDH** ASHRAE DISTINGUISHED LECTURER <i>Back to Basic Session II -</i> **1 PDH** <i>“The Rise of Variable Flow Primary and the Fall of Primary/ Secondary/Tertiary Pumping Systems “</i>	May 12, 2015 * At Westbury Manor Dinner Presentation— TBA Presenter: TBA **1 PDH** Student Activities Night Refrigeration Night
January 2016 ASHRAE Winter Meeting	June 14, 2016 * At Westbury Manor Free Buffet Dinner for Members PAST PRESIDENTS NIGHT & OFFICER INSTALLATION STUDENT SCHOLARSHIPS TO BE AWARDED ASHRAE History Quiz and prize Give-A-Ways
February 9, 2016 * At Westbury Manor Dinner Presentation—TBA Presenter: TBA **1 PDH** Joint Meeting with USGBC Resource Promotion Night Membership Promotion Night	August 2016 Chapter Regional Conference (CRC) Region I

BOG Meeting Minutes

Tom Fields (President):

- Push for students to sign up if they aren't members at ASHRAE holiday dinner
- Push for donations for Rich at ASHRAE holiday dinner
- Reschedule Eli's presentation/presentations are full for the year at Westbury Manor, consider other possible venues
- Evans Lizardos is looking to do a smoke presentation
- January presentation is scheduled (Mark Mcracken)
- February is Big Ass Fans with USGBC
- March is ACS oil presentation generators and Boilers
- April is Hicksville ice place
- May is Carrier (Student Activities)
- Meeting Minutes are approved
- PAOE points are behind
- Monthly Articles are preferred earlier than received
- Thank you Liset & Anthony for webpage upkeep

Don Kane (CTTC):

- CTTC points up to 575 updated at newsletter
- Updated ticket book art
- Field trip to Hicksville Ice place
- Needs ingoing and outgoing check details, stubs and info from Andrew Dubel. He is organized and should have the info.

Charlie Lesniak (Grassroots)

- Engineer's week covered by Andy Manos, 3 presentations
- Website needs updating
- Engineer's week should have sponsoring possibilities
- Looking for an elected official for February meeting with USGBC
- Looking to do a Joint meeting with NYC Chapter

James Hanna (Historian)

- New Business Neil Rossen, North Shore Long Island Jewish
- Nassau County Habitat for Humanity in Great Neck is building a house that possibly will be Net-Zero
- GGAC Sustainability Consideration, LI Geo Joint project, do load calcs
- Similar to Queens project Sandy rebuilds

Andrew Dubel (Research Promotion)

- Check needed to meet 30% goal
- \$1500 needed
- Full circle is done/Scholarship done (allotted?)
- More names for Vendor Books?

BOG Meeting Minutes (Cont'd. from page 4)**Awards**

- Silverstein leaving December – January for California
- We are considering a plaque to recognize outstanding service
- January is usually a tough turn-out
- Lizardos presenting at Suffolk Community College on VAV boxes (12/9/2015)
- SBU students working on the design project
- Late April for Scholarship review

Membership:

- Steve Sills emails are being received about renewals & delinquency

Frank Paradiso (YEA)

- Consider setting up a Brewery tour
- Push the Smart-Start Program

Rich Halley (CRC Committee):

- Tour around Statue of Liberty from New Jersey
- Golf outing needs to be done by 1pm
- Website updates

Long Island Chapter - Past Presidents

1958	H. Campbell, Jr. PE	1987	Abe Rubenstein, PE
1959	Clyde Alston, PE	1988	Michael O'Rourke
1960	Sidney Walzer, PE	1989	Mel Deimel
1961	Sidney Gayle	1990	Robert Rabell
1962	William Kane	1991	Gerald Berman
1963	Louis Bloom	1992	Donald Stahl
1964	Milton Maxwell	1993	Ronald Kilcarr
1965	Will Reichenback	1994	Jerald Griliches
1966	Joseph Minton, PE	1995	Walter Stark
1967	Irwin Miller	1996	Joe Marino
1968	Walter Gilroy	1997	Norm Maxwell, PE
1969	Charles Henry	1998	Alan Goerke, PE
1970	William Wright	1999	Frank Morgigno
1971	Louis Lenz	2000	Michael Gerazounis, PE, LEED AP
1972	Ronald Levine	2001	Ray Schmitt
1973	Henry Schulman	2002	Steven M. Stein, PE
1974	Myron Goldberg	2003	Andrew Braum, PE
1975	John N. Haarhaus	2004	Claudio Darras, P.E.
1976	Richard K. Ennis	2005	Craig D. Marshall, P.E.
1977	Kenneth A. Graff	2006	John Nally
1978	Evans Lizardos, PE, LEED AP	2007	Peter Gerazounis, PE, LEED AP
1979	Albert Edelstein	2008	Steven Friedman, PE, HFDP, LEED AP
1980	Ralph Butler	2009	Steven Giammona, P.E., LEED AP
1981	Robert Rose, PE	2010	Nancy Román
1982	Timothy Murphy, PE	2011	Carolyn Arote
1983	Leon Taub, PE	2012	Brian Simkins, LEED AP
1984	Raymond Combs	2013	Andrew Manos, LEED AP BD+C
1985	Edward W. Hoffmann	2014	Richard L. Rosner, P.E.
1986	Jerome T. Norris, PE		



PAOE POINTS FOR 2015/2016

Chapter Members	Membership Promotion	Student Activities	Research Promotion	History	Chapter Operations	CTTC	GGAC	Chapter PAOE Totals
282	130	175	490	0	730	575	175	2,275

January Program



Dinner Presentation

“Energy Storage: A Vital Ingredient in a Lower Carbon Future ”

Presented by

Mark M. MacCracken, P.E., Pte., LEED Fellow
CALMAC Manufacturing Corporation
ASHRAE DISTINGUISHED LECTURER

**Attendees
Will Earn
2 PDH's!**

DATE:	TUESDAY, JANUARY 12, 2016		
Time:	6:00 PM - Cocktails and Hors D'oeuvres 7:00 PM - Dinner Presentations 8:45 PM - Conclusion	Fee:	\$ 45.00 Member \$ 50.00 Guest \$ 15.00 Student
Location:	WESTBURY MANOR (516) 333-7117 1100 Jericho Tpke., Westbury, NY 11590 Directions are posted at @ www.ashraeli.org.		
Presentation:	Whether the reason is Energy Independence, National Security or Climate Change, reducing our use of Carbon will be critical to our society's future. One critically important aspect about fossil fuels is that they are not just forms of energy, they are forms of “stored” energy. If we are going to reduce our dependence on them by using renewable energy like Wind or Solar, which are forms pure energy, we will also have to replace the storage aspect of the them. Energy Storage on both the Grid side and Building side of the meter will be covered along with their respective applications. In addition Evans Lizardos will present his Back to Basic Series, Session 2 “The Rise of Variable Flow Primary and the Fall of Primary/Secondary/Tertiary Pumping Systems”. All attendees will receive <u>2 PDH's</u>.		
About our Speaker:	Mark M. MacCracken is the CEO of CALMAC Manufacturing Corporation, whose main products are used for off-peak cooling of buildings using Thermal Energy Storage. In his almost 40 years with the firm, he has been involved in all aspects of the company including, R&D contracts, patents, manufacturing, marketing and finance. He was the principal investigator on research projects contracted by Oak Ridge National Labs, NASA and National Renewable Energy Research Lab (SERI). Mr. MacCracken's company has been involved in over 4,000 thermal storage systems in 37 countries. He has three U. S. patents, is a licensed Professional Engineer in the state of New Jersey and has written numerous technical articles. He was the 2011 Chair of USGBC's Board of Directors, Vice-Chair of ASHRAE Standard 1891.1, the former Chair of ASHRAE's Thermal Storage Technical Committee, and on the Board of Director's of AHRI.		

CHAPTER MAY NOT ACT FOR SOCIETY

An International Organization

Young Engineers in ASHRAE (YEA)

I hope everyone had a great holiday season and a happy new year's celebration. The 2016 ASHRAE Winter Conference is being held in Orlando between January 25th -27th take a look at the ASHRAE webpage for any helpful information about the conference. Recent Graduates can transfer their student ASHRAE account with the Smart Start Program.

Simply put, it's the best way for ASHRAE student members to receive the many benefits of Associate grade membership after finishing college. SmartStart is a 3-year program that allows Student members to transfer to Associate grade membership at a rate that is recent-graduate friendly.

We will be looking for ideas for social events so please contact me if you have suggestions. Come Join us for the next monthly meeting 1/12/2016 at the Westbury Manor.

Frank Paradiso
YEA Chairman



Student Activities

January is here and all of us skiers are anxiously awaiting signs of cold weather and snow.

For our Students the holidays are now coming to an end and it's time to get back to School and a return to their Student Chapter of ASHRAE.

This year has been very busy for ours Students. The Stony Brook Chapter has entered the Design competition and is working very hard on their Project under the supervision of their advisor Andy Manos. Our Suffolk Community Student Chapter has been very busy with multiple presentations including Design Basics of Variable Air Volume as presented by our own Mr. Evans Lizardos. The Students really enjoy when members take the time to share their knowledge and experience with them. If you or any one you know would like to invest some time and energy into the future leaders of our industry please contact me at rchalley@trane.com.

Our Next Student night will be in February and we would truly appreciate you coming down and supporting our Students.

Richard Halley
Student Activities Committee Chair



Membership

As a New Year's Resolution, please try and visit ASHRAE.org to review your My ASHRAE profile. Please make sure your membership is up to date, along with your contact information. Please confirm that your chapter is listed as Long Island, as if it is not we will not receive your chapter dues.

Happy New Year from all of us at ASHRAE Long Island.

Ken Mueller
Membership Chairman

Research Promotion

Hope everyone had happy, healthy and safe holiday season. We have reached over 45% of our goal so far this year. We appreciate your support so far and hope for your constituent support as we enter the new year.

I would like to thank the companies who have participated in the annual 2015 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 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. There's still time if you would like your company listed in the directory please contact me. The deadline is **January 15th**. 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.



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

INDIVIDUALS

Frank D Morgigno	Frank Paradiso
Michael Gerazounis, PE	Richard Halley
John D Nally	James Hanna
Andrew E Manos	Thomas Fields
Donald W Kane, PE	Ricky Gaska
William Artis, Jr	Chris Sideris
Richard L Rosner, PE	James R Tauby, PE
Andrew B Dubel	
Charles J. Lesniak, PE,	
Robert J Fuchs	

COMPANIES

SMACNA - Long Island	Catan Sales
PVI	Klima Sales
Metro Air Products	Venco Sales
Technical Air Systems	Miller Proctor Nickolas Inc.
RPG Associates	
Albert Weiss	
VMC East	
MV Controls	
ACS Analytical and Combustion Systems	
AEF Sales	
Accuspec	
Lizardos Engineering	
Bush Sales	

CONTRIBUTIONS CAN BE MADE IN THE FOLLOWING WAYS:

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

Andrew Dubel, P.E.
ASHRAE Research Promotion Chair
c/o Lizardos Engineering Associates PC
240 West 35th Street, Suite 304
New York, NY 10001

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

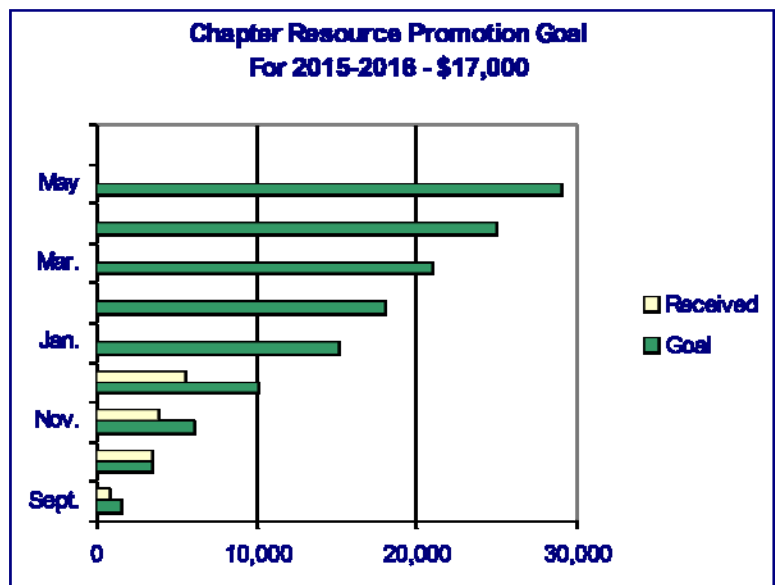
3) You can contribute via PayPal from the ASHRAE LONG ISLAND web site, just click on the donate button.

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

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

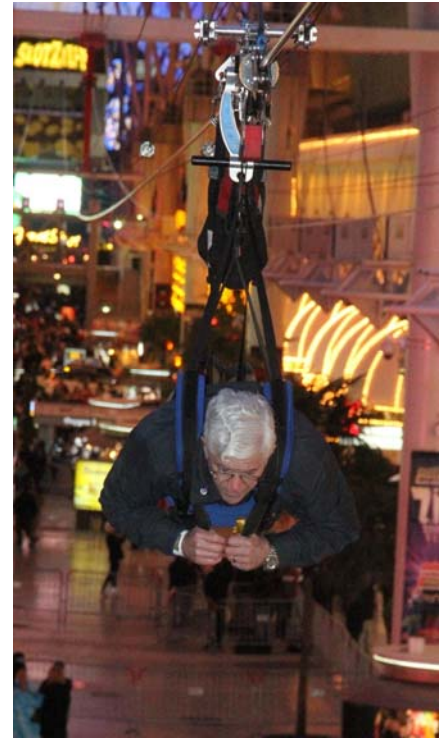
Thank you again for all of your support!

Andrew B. Dubel, P.E.
Research Promotion Chair



CTTC - THERMAL STORAGE - IT'S A BTU...TIFUL THING

One of the bedeviling facets of the HVAC/R world, is the lack of consistency in need for BTU's (either added to or removed from the conditioned space) due to fluctuations in occupancy, solar insolation, building orientation, seasonal climate changes, not to mention (but we will) variations in personal preferences as to what constitutes "comfortable". While it is certainly possible to install enough heating and cooling capacity to maintain comfort levels regardless of the outside air temperature and, in the days of cheap energy, it was commonplace to cool the air for humidity control and reheat the dried air to the comfort level desired. Economics and, in some cases, governmental fiat (with a lower case "f", not the cute little vehicle used by the Pope) has dictated that we do not install any more heating/cooling equipment than absolutely necessary. Economics is the driver for reducing first-installed cost, operating cost (especially where time-of-use utility rates are in effect) as well as for reducing the room needed for the equipment (why waste space on a larger chiller, when that same floor space could be rented out to generate income?). In the electrical world, batteries and capacitors are utilized to allow otherwise undersized power sources to handle momentary overloads. The energy is stored until the load calls for it, the stored energy supplements the power supply output, the load operates, the power supply doesn't go up in flames and the accountants are happy that a smaller power supply was adequate, keeping the budget in check.



In the comfort-conditioning arena, we have thermal storage. Not really a new concept by any means. I am sure that Og, the caveman, right after discovering fire, learned that by putting a few large rocks in front of the fire and dragging them into his cave for the night, he was able to improve the comfort level in the cave. As summer approached, and the glaciers started calving, Og would dutifully drag some of the larger chunks of ice back to the cave to cool things down a bit. Low tech solution, to be sure, but better than nothing and, the first implementation of what we think of today as thermal storage. To be more precise, we should probably refer to it as BTU shifting...as, while it is possible to store "heat", there is no such thing as "cold" to store. We are really removing heat from something and then preventing it from absorbing heat from its surroundings. Some of the commercially available systems today, are referred to as "ice storage" systems, when they are, more properly, ice-making/storage systems. The true ice storage systems were when, for example, back in the 1800's when the good folks in Port Perry, Canada, would marshal their horses, plows and saws, and head out to Lake Scugog to begin harvesting the "ice crop" which would either be shipped out (fifteen rail-car loads a day) or stored in ice-houses, packed with sawdust or excelsior to insulate the valuable frozen water. More than just a historical (or semantical) note, when the ice slabs were cut from frozen Lake Scugog, no energy had been expended by the people to cause the water in the lake to change state.

Today's thermal storage systems, utilizing ice-storage do require energy to be expended to change the water to ice so that the process can be reversed when there is a need for additional cooling to use that stored ice to absorb the heat of fusion from the heated air in the building, cooling it down in the process. The benefit to this is twofold. One, if the utility tariff includes time-of-use rates or if a larger chiller would ratchet up the utility demand charges, the net energy charge may be significantly reduced. Secondly, as the chiller needed will be smaller in capacity (as the additional cooling load will be provided by the stored ice), installed first cost (of the chiller) and machine room space will be reduced. The cost of the additional thermal storage equipment can be offset somewhat by the reduced chiller cost. Additionally, ice making/storage installations are sometimes proposed to provide "green" credits, due to reduced energy costs. The reduced energy costs are due to the shifting of the energy consumption to an off-peak time, when utilities charge a lower rate (to encourage the shift away from peak times when generation capacity may be at or approaching its limit). A BTU is a BTU and a kilowatt is a kilowatt...if the kilowatts to generate the BTUs are coming from the same fossil fuel power station, just a little later in the day (when they are cheaper), one may not be enjoying the environmental improvement that one might think. But if we keep in mind that economics is the driver here, the spreadsheet can make a lot of monetary sense. (Sort of like buying an electric vehicle, so you can get the Clean Air Sticker and drive seventy MPH in the HOV lane, by yourself, while the rest of the world is stuck in stop-and-go traffic).

So much for "lack of heat" storage...how about when we want to store BTUs for later use in heating? Again, much as Og did with his stone (or as some of our parents and grandparents did as children, warming a brick in the oven before retiring for the night, so it could be placed in a towel at the foot of the bed to keep one warm in the middle of winter) there are methods of storing heat energy for later use. Those hydronic systems using water as the storage medium do not have the benefit of the phase change, relying solely on sensible heat capacity. However, with a correctly sized and insu-

CTTC - THERMAL STORAGE - IT'S A BTU...TIFUL THING (Cont'd. from Page 9)

lated storage tank, paired with a boiler (which can be of smaller capacity than if it was the sole source of heat) and outside reset control to maximize the amount of heat that can be recovered from the storage tank, these systems can provide some savings, using a smaller boiler, and capturing all of the heat produced which is excess to the immediate need of comfort conditioning. Others have utilized water/wax emulsions which, properly proportioned, can provide the benefits of phase change, but at a temperature which can be used for comfort heating. There have been reports of German scientists developing uniformly sized Zeolite pellets as a thermal storage medium, with the claim that all the heat stored can be recovered. One would imagine that there would be some hysteresis in this process, sapping some of the stored energy. Perhaps this will be a subject for further study and another article!

Other thermal (heat) storage mechanisms range from simple Trombe walls using masonry or water mass to absorb, delay and transmit incident solar energy, to more exotic fluoride salts that NASA was experimenting with for space use as far back as 1994.

Is thermal storage a panacea for all applications?...not necessarily. In those cases, where buildings are situated such that there is a "hot" side and a "cold" side that changes as the sun progresses across the sky (I know...the sun doesn't move..the earth does), the use of variable refrigerant flow, split systems, capable of using the areas needing cooling as a source for the BTUs to move to the areas needing heating may be a viable choice rather than thermal storage, eliminating the intermediate process with the attendant losses, as well as the additional equipment needed. Each application has to be analyzed, based on the constraints of the installation and economics and the most appropriate solution chosen.

Welcome to the New Year!

Don Kane, P.E.

CTTC Chair AND V.P. - cttc@ashraeli.org

History

The history of water filters can be traced to the earliest civilizations with written records. Water filters have been used throughout history to improve the safety and aesthetics of water intended to be used for drinking or bathing. In modern times, they are also widely used in industry and commerce. The history of water filtration is closely linked with the broader history of improvements in public health.

Beginning in Ancient India and Egypt, Ancient Sanskrit and Egyptian writings document practices that were followed to keep water pure for drinking. The Sushruta Samhita (3rd or 4th century CE) specified various methods, including: boiling and heating under the sun. The text also recommends filtering water through sand and coarse gravel. Images in Egyptian tombs, dating from the 15th to 13th century BCE depict the use of various water treatment devices.



Later on in Greece, Hippocrates conducted his own experiments in water purification. His theory of the four humors of the body led him to believe that the maintenance of good health required that the four humors be kept in balance. He recommended that feverish patients immerse themselves in a bath of cool water, which would help realign the temperature and harmony of the four humors. Hippocrates believed that water had to be clean and pure and he designed a crude water filter to "purify" the water he used for his patients. Later known as the "Hippocratic sleeve," this filter was a cloth bag through which water could be poured after being boiled.

Various methods for masking bad water were used: Diophanes of Nicaea of the first century BC advised putting macerated laurel into rainwater, Paxamus proposed that bruised coral or pounded barley, in a bag, be immersed in bad tasting water. and the eighth century Arabian alchemist, Gerber, described various stills for purifying water that used wick siphons — to transfer water from one vessel to another.

Today, as we know it for modern history, Sir Francis Bacon in his famous compilation "A Natural History of Ten Centuries" 1627 (Baker & Taras, 1981) discussed desalination and began the first scientific experimentation into water filtration. He believed that if seawater was allowed to percolate through the sand, it would be purified of salt. He thought that

History (Cont'd. from Page 10)

sand particles would obstruct the passage of salt in the water. Although his hypothesis was proven incorrect, it marked the beginning of a new interest in the field. An experiment of sand filtration was illustrated by the Italian physician Lucas Antonius Portius. He wrote about the multiple sand filtration method in his work "Soldier's Vade Mecum". He illustrated water filtration experiment by using three pairs of sand filters. Fathers of microscopy, Antonie van Leeuwenhoek and Robert Hooke, used the newly invented microscope to observe for the first time small material particles that lay suspended in the water, laying the groundwork for the future understanding of waterborne pathogens.

The first documented use of sand filters to purify the water supply dates to 1804, when the owner of a bleachery in Paisley, Scotland, John Gibb, installed an experimental filter, selling his unwanted surplus to the public. This method was refined in the following two decades by engineers working for private water companies, and it culminated in the first treated public water supply in the world, installed by engineer James Simpson for the Chelsea Waterworks Company in London in 1829. This installation provided filtered water for every resident of the area, and the network design was widely copied throughout the United Kingdom in the ensuing decades.

The practice of water treatment soon became mainstream, and the virtues of the system were made starkly apparent after the investigations of the physician John Snow during the 1854 Broad Street cholera outbreak. Snow was skeptical of the then-dominant miasma theory that stated that diseases were caused by noxious "bad airs". Although the germ theory of disease had not yet been developed, Snow's observations led him to discount the prevailing theory. His 1855 essay *On the Mode of Communication of Cholera* conclusively demonstrated the role of the water supply in spreading the cholera epidemic in Soho, with the use of a dot distribution map and statistical proof to illustrate the connection between the quality of the water source and cholera cases. His data convinced the local council to disable the water pump, which promptly ended the outbreak.

As for current regulations, The Metropolis Water Act introduced the regulation of the water supply companies in London, including minimum standards of water quality for the first time. The Act "made provision for securing the supply to the Metropolis of pure and wholesome water", and required that all water be "effectually filtered" from 31 December 1855. This was followed up with legislation for the mandatory inspection of water quality, including comprehensive chemical analyses, in 1858. This legislation set a worldwide precedent for similar state public health interventions across Europe. The Metropolitan Commission of Sewers was formed at the same time, water filtration was adopted throughout the country, and new water intakes on the Thames were established above Teddington Lock. Automatic pressure filters, where the water is forced under pressure through the filtration system, were innovated in 1899 in England. Limited drinking water standards were first implemented in the US in 1914, but it would not be until the 1940s that federal drinking water standards were widely applied. In 1972, the Clean Water Act passed through Congress and became law, requiring industrial plants to proactively improve their waste procedures in order to limit the effect of contaminants on freshwater sources. In 1974, the Safe Drinking Water Act was adopted by all 50 U.S. states for the regulation of public water systems within their jurisdictions. And now you know.

References: https://en.wikipedia.org/wiki/History_of_water_filters

James Hanna

History Chairman

Grassroots Government Activities Committee (GGAC)

As most of you know ASHRAE is no longer a US based society it has moved itself to a global society, ASHRAE wanted to start a new committee in their local chapters to help it grow globally so it created the GGAC. The main purposes of the GGAC is to serve as a communicator between the local ASHRAE chapters and national, serve as a communicator between the local ASHRAE chapters and other trade organizations, and to update local government officials on ASHRAE standards and technical issues. Please look at the ASHRAE's main GGAC webpage at <https://www.ashrae.org/government-affairs/> for more information what the GGAC is doing nationally. The latest topics which ASHRAE is participating in can be found at the link: <https://www.ashrae.org/government-affairs/government-affairs-updates/government-affairs-updates-12-18-2015#9>



For this ASHRAE season we will have three joint engineering meetings and we are looking to see if other organizations would like to join us for joint meetings for the next ASHRAE year. In February we will hold a joint meeting with the USGBC Chapter of Long Island <http://usgbc-li.org/>, and in March with Long Island Geo <http://www.li-geo.org/>. In addition to our joint meetings we will have presentations for National Engineering Week with EJCLI <http://www.ejcli.org/>.

Please contact me if your organization would like to join us for a joint meeting.

NIST Seeking Nominations for Appointments to Eight Federal Advisory Committees, Including Smart Grid Advisory Committee—The National Institute of Standards and Technology (NIST) is seeking nominations for appointments to eight Federal advisory committees, including NIST's Smart Grid Advisory Committee. The Smart Grid Advisory Committee provides guidance to NIST on smart grid standards, smart grid implementation, and helps identify needs, gaps, and issues. Nominations for all committees are accepted on an ongoing basis and will be considered as and when vacancies arise. Full information on the call for nominations can be found [here](#).

DoE Sets First Ever Standards for Commercial and Industrial Pumps—The Department of Energy along with industry representatives, utilities, and efficiency experts have developed a standard efficiency standards for clean water commercial and industrial pumps ranging from 1 HP to 200 HP. These standards propose:

- removing the least efficient 25% of pumps from the market.
- creating a Pump Energy Index (PEI) metric for rating the pumps from a baseline performance
- the PIE will include credits for pumps that operate with Variable Frequency Drives (VFDs)

These new rules will take effect in 2019. Additional information can be found:

<http://energy.gov/sites/prod/files/2015/12/f28/Pumps%20ECS%20Final%20Rule.pdf>

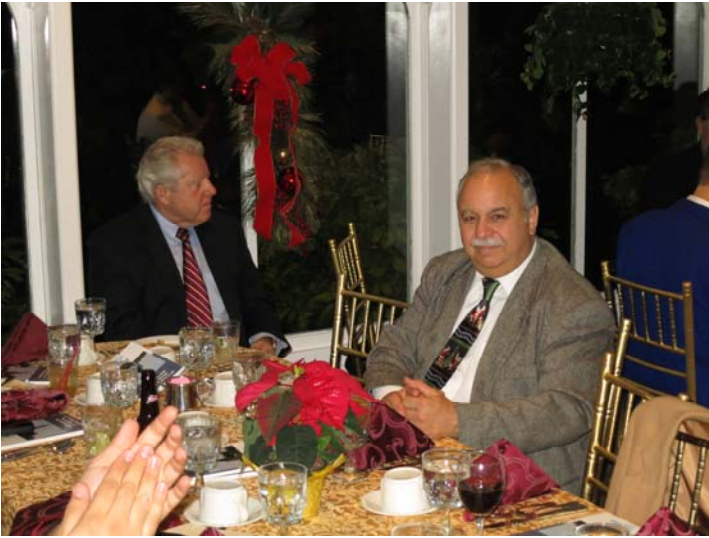
State of New York Reissues Temporary Rules on Legionella—The New York State Register, released on December 2, 2015, has once again published the adoption of emergency rules for the treatment of Legionella. These regulations, which originally became effective in August, implemented requirements that protect the public from the threat posed by Legionella. To ensure that protection is maintained, the Commissioner of Health and the Public Health and Health Planning Council have determined it necessary to file these regulations on an emergency basis. Public Health Law and the State Administrative Procedure Act provide the authority to adopt emergency regulations when necessary for the preservation of the public health, safety or general welfare and that compliance with routine administrative procedures would be contrary to the public interest. The various State agencies intend to adopt this emergency rule as a permanent rule and will publish a notice of proposed rulemaking in the New York State Register at some future date. The emergency rule, which is effective immediately, will expire February 10, 2016.

As with the earlier emergency rule published several months ago, portions of ASHRAE Standard 188-2015 Legionellosis: Risk Management for Building Water Systems are referenced.

City of New York Proposes New Regulations on Cooling Towers—The New York City Department of Health and Mental Hygiene is proposing new regulations that would require owners of buildings with cooling towers to take steps to protect the health and safety of New Yorkers. The regulations address cooling towers' operations, maintenance, testing and recordkeeping. A public hearing was held on January 4, 2016 at the New York City Department of Health and Mental Hygiene.

Charlie J. Lesniak, P.E.
Grassroots Government Activities Chair

December Holiday Party Pictures



December Holiday Party Pictures



2016 ASHRAE Winter Conference - January 23-27, Orlando, FL

A promotional banner for the 2016 ASHRAE Winter Conference. The background is a light blue sky with a modern glass skyscraper on the right. The ASHRAE logo is in the top right corner. The main text is in large, bold, black font. Below the main title, the dates and location are listed. A quote about the technical program is in italics. At the bottom left, there is a logo for the 2016 AHR Expo and its dates/location. A black box on the right contains white text about venue accessibility.

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Venues are strategically located next to each other for easy access.

With new tracks focused on design-build practices and residential systems as well as programs that align well with current trends in HVAC&R engineering, you don't want to miss the Technical Program at ASHRAE's 2016 Winter Conference. Energy efficiency and sustainability are emphasized along with current engineering and construction practices outside of the U.S. and Canada.

Early Bird registration offering the lowest registration costs ends Nov. 2. Register to take advantage of these fees. For more information or to register, visit www.ashrae.org/orlando.

The Technical Program features eight tracks, some 100 sessions and more than 300 speakers. Over 200 Professional Development Hours, as well as Continuing Education Units, which can be applied toward a Professional Engineering license, including the state of Florida, AIA LUs and LEED®AP credits are available.

Check out the new **interactive schedule** to find the topics, sessions and speakers of most interest to you! Featuring options to search by track, program type, date and keyword, the interactive Technical Program provides a detailed look at each session from color-coded tracks to sponsoring committees. Access, browse and bookmark the feature on your computer, tablet or smartphone.



The interactive schedule for the Technical Program is available at www.ashrae.org/orlandointeractivetechprogram.

In addition to sessions providing updates on industry standards and ASHRAE publications, the Conference features several innovative sessions in the Cutting Edge and International Design tracks as well as residential programs, numerous refrigerant update presentations, especially on low global warming potential, and fundamentals, applications, system and equipment sessions.

For more information or to register, visit www.ashrae.org/orlando

Save-the-Date - ASHRAE Webcast - April 21, 2016

SAVE THE DATE! April 21, 2016 | 1–4 pm EDT

This webcast will feature industry experts who will define the importance of, and why we should strive for, net zero in the built environment. Viewers will be able to identify behaviors that create more effective ownership, design and construction teams, and will recognize the value of a collaborative process in building design and the impact on costs. With a strong emphasis on real-world applications, the program will also discuss the primary technical and financial challenges in achieving net zero buildings, and where this design approach can best be applied.

- Take advantage of the **two week On Demand period from April 22 – May 6** and schedule your viewing of the webcast around your time zone and schedule
- The On Demand player has fast forward and rewind capabilities — allowing you to view all or part of the program with your members
- Plan a lunch or dinner meeting with your Chapter to view the webcast
- Utilize the Net Zero Resources online to supplement the webcast program
- Earn 3 FREE PDHs
- Chapters who register to view the webcast will earn **100 PAOE points**

Visit www.ashrae.org/webcast for additional information about the program, sponsorships, continuing education credits, speakers, and registration.

\$\$\$ SAVE MONEY \$\$\$

ASHRAE-LI is now offering Ticket Books for our Monthly Meeting/Dinner presentations. \$450 for a book of Eleven (that's right....eleven, one better than ten) tickets for the price of ten member admissions. Tickets are valid until December of 2017 and may be used by members and non-members. For those of you who attend all or most of our meetings and for organizations who normally send large groups to the meetings, this is a great way to save a few dollars and speed up the entry process. For more information and/or to purchase ticket books, please contact Don Kane at cttc@ashraeli.org or call 631-574-4870.



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FOR MORE INFORMATION GO TO - <https://www.ashrae.org/education--certification/certification>

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