February 2020

THE LONG ISLAND SOUNDER

ASHRAE Long Island Chapter, Region I...*Founded in 1957* www.ashraeli.com

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

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President's Message

Hello everyone,

Welcome to the February newsletter.

The 2020 ASHRAE annual winter conference is now complete. Many of us who attended the conference have returned with some new and interesting information from committee meetings and various technical committee meetings.

It was also an opportunity to view some interesting products and advances in technologies at the AHR trade show.

I would also like to thank Chuck Nora, who gave the chapter's very well attended January presentation on indoor grow rooms and the importance of accounting for evapotranspiration. It was a very interesting, topical and insightful presentation that was very educational.

We are deeply saddened about the sudden passing of our friend and colleague Bill Artis. Bill served ASHRAE by volunteering his time, effort and knowledge to chapter and regional positions as well as technical committees.

Knowing him brought exposure to a level of work ethic, passion for learning and focus. We are all the better for knowing and learning from his example.

Please keep him and his family in your thoughts.

Frank Paradiso
President - Long Island Chapter

CHAPTER MONTHLY MEETING

DATE:	**Tuesday, February 11, 2020**
TIME:	6:00 PM - Cocktails/Dinner 7:00 PM - Dinner Presentation 8:45 PM - Conclusion
LOCATION:	Westbury Manor 1100 Jericho Tpke. Westbury, NY 11590
FEES: Members - Guest - Student -	 $50.00 $60.00 $15.00

Check the ASHRAE Website for Society news and to join/renew membership!
http://www.ashraeli.com

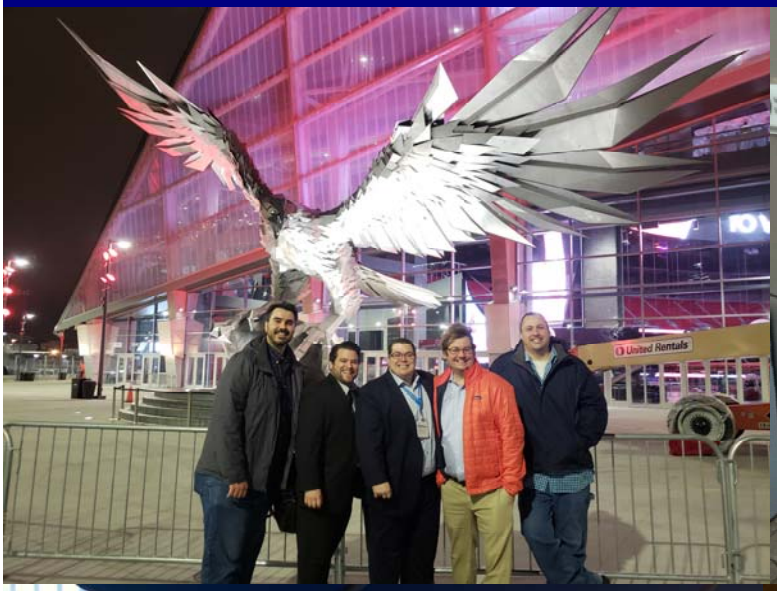
In Memory of Bill Artis, BCxP, BEMP, BEAP, LEED AP

The ASHRAE Long Island chapter is deeply saddened to share the news that Bill Artis has passed away suddenly at the young age of 32. We have lost a friend and colleague, who made a tremendous impact on our chapter, the broader ASHRAE community and our industry.

Bill's commitment to ASHRAE and to its members spanned local membership, serving various roles within the chapter, region, and society - often adding additional advisory roles to holding multiple positions at any given time. He was a dedicated member who directly contributed to educating and engaging members through professional events but also fostering community with countless LI fishing trips and YEA outings throughout the years.

We are so grateful for the opportunity to know and collaborate with Bill. We thank him for his dedication, leadership and friendship over the years - he will be dearly missed. Please keep Bill and his family in your thoughts.

In Memory of Bill Artis, BCxP, BEMP, BEAP, LEED AP



Long Island Chapter Officers & Committees

ASHRAE 2019/2020 OFFICERS

POSITION	NAME	PHONE	EMAIL
President	Frank Paradiso	631.632.2792	c006@ashrae.net
President-Elect	James Hanna	718.269.3768	c006pe@ashrae.net
Vice President	Bill Artis	516.732.2519	c006vp@ashrae.net
Financial Secretary	Matthew Vitrano	212.643.9055	c006tr@ashrae.net
Treasurer	Murat Bayramoglu	631.312.8818	c006tr@ashrae.net
Secretary	Michael Nigro	212.643.9055	c006sec@ashrae.net
Board of Governors	Elizabeth Jedrlinic	516.490.1621	c006bog1@ashrae.net
Board of Governors	Andrew Blom	631.626.1695	c006bog2@ashrae.net
Board of Governors	Matthew Catan	407.489.6684	c006bog3@ashrae.net
Board of Governors	Michael Razzano	516.805.3084	c006bog4@ashrae.net
Board of Governors	Richard Halley	516.490.1616	c006bog5@ashrae.net

ASHRAE 2019/2020 COMMITTEES

COMMITTEE	NAME	PHONE	EMAIL
Programs & Special Events	James Hanna	718.269.3768	c006pe@ashrae.net
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Historian	Matthew Vitrano	212.643.9055	c006his@ashrae.net
Student Activities (SA)	Elizabeth Jedrlinic	516.490.1621	c006sa@ashrae.net
Young Engineers in	Michael Nigro	212.643.9055	c006yea@ashrae.net
Webmaster	Bill Artis	516.732.2519	c006web@ashrae.net
Nominating	Michael Gerazounis, PE, LEED AP	212.643.9055	nominating@ashraeli.org
Reception & Attendance	Matthew Catan		reception@ashraeli.org
PR & Engineering Joint	Andrew Manos, LEED AP	631.632.2792	pr@ashraeli.org
Golf Outing	Peter Gerazounis, PE LEED AP	212.643.9055	golf@ashraeli.org
Awards	Brian Simkins	203.261.8100	c006ha@ashrae.net
ASHRAE LI, P.O. Box 79, Commack, NY 11725			

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Chapter Monthly Meeting - Program for 2019/2020

September 10, 2019 * At Westbury Manor  Dinner Presentation – Builds & NYC Code Compliance Presenter: Ian Nelson ****1 PDH**** **Refrigeration Night**	**March 10, 2020** * *At Westbury Manor* Dinner Presentation - Natatorium Design Presenter: Joseph Schmitz ****1 PDH**** **Student Activities Night** **YEA Night**
October 8, 2019 * *At Westbury Manor*  Dinner Presentation— Back to Basics: Hot Gas Bypass and Hot Gas Reheat (and why mixing them up will cost you money) Commissioning for Dummies (by dummies) Presenter: Bill Artis ****1 PDH****	**April 14, 2020** Dinner Presentation - TBD Presenter: ****1 PDH****
November 12, 2019 * *At Westbury Manor*  Dinner Presentation-- Energy Efficient Solutions for Commercial Kitchen Ventilation Presenter: Dr. Andrey Livchak ****1 PDH**** **Membership Promotion** **Student Activities Night and YEA Night** **Resource Promotion Night**	**May 4, 2020** * *Cherry Valley Club, Garden City, NY* **ANNUAL GOLF OUTING**
December 10, 2019 * *At Westbury Manor*  Dinner Presentation-- Fire & Smoke Damper Actuators Presenters: Rick Smith ****1 PDH****	**May 12, 2020** **Annual Field Trip**
January 14, 2020 * *At Westbury Manor*  Dinner Presentation– Grow Rooms– And how to Design them Presenter: Chuck Nora ****1 PDH****	**June 9, 2020** * *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 1-5, 2020 ASHRAE Winter Meeting Orlando, FL	**June 2020 - TBD (4pm-8pm)** * *Dixie II @ Captree State Park Boat Basin, NY* **ANNUAL FISHING TRIP**
February 11, 2020 * *At Westbury Manor –* Dinner Presentation– Flame Free Refrigerant Fittings Presenter: Kenny Balci ****1 PDH**** **Membership Promotion Night** **Resource Promotion Night**	**August 13-15, 2020** **CHAPTERS' REGIONAL CONFERENCE (CRC) REGION I**
February 16-22, 2020 **NATIONAL ENGINEERS WEEK**	

Meeting Program

Dinner Presentation

Flame-Free Refrigerant Fittings

Presented by

Kenny Balci
Senior Sales Engineer, Sporlan Division
Parker Hannifin

DATE:	**TUESDAY, FEBRUARY 11, 2020**		
Time:	6:00 PM - Cocktails and Hors D'ouevres 7:00 PM - Dinner Presentations 8:45 PM - Conclusion	**Fee:**	$ 50.00 Member $ 60.00 Guest $ 15.00 Student
Location:	**WESTBURY MANOR** (516) 333-7117 1100 Jericho Tpke., Westbury, NY 11590 **Directions are posted at @ www.ashraeli.com**		
Presentation:	Imagine an installation where refrigerant fittings no longer require the assistance of a flame. Showcased at the at Purdue Conferences in summer of 2018 under subject: "Assessment of Leakage Rate and Durability of Field-made Mechanical Joints for Systems Using Low-GWP Flammable Refrigerants (ASHRAE RP-1808)" ASHRAE shared with the industry the possibilities of flame free fittings. Today we will take you through further advances of this technology and how proven a fitting it's become. **All attendees will receive 1 PDH.**		
About our Speaker:	Kenny is a Senior Sales Engineer for the Sporlan Division of Parker Hannifin, responsible for metropolitan New York and New Jersey. Before his New York assignment he was a Product Engineer for Sporlan's Export Company ACAL, training and calling on their global accounts and continues to service accounts in Eastern Europe. Kenny also worked as a Refrigeration Applications Engineer for a regional Sporlan wholesaler in the northeast and is in his 20 th year in our industry. He holds a Bachelor of Science degree in Mechanical Engineering from Gaziantep University, Turkey and Master of Science degree in Business Administration from NYIT, Old Westbury, NY.		

Long Island Chapter - Past Presidents

1958	H. Campbell, Jr. PE	1989	Mel Deimel
1959	Clyde Alston, PE	1990	Robert Rabell
1960	Sidney Walzer, PE	1991	Gerald Berman
1961	Sidney Gayle	1992	Donald Stahl
1962	William Kane	1993	Ronald Kilcarr
1963	Louis Bloom	1994	Jerald Griliches
1964	Milton Maxwell	1995	Walter Stark
1965	Will Reichenback	1996	Joe Marino
1966	Joseph Minton, PE	1997	Norm Maxwell, PE
1967	Irwin Miller	1998	Alan Goerke, PE
1968	Walter Gilroy	1999	Frank Morgigno
1969	Charles Henry	2000	Michael Gerazounis, PE, LEED AP
1970	William Wright	2001	Ray Schmitt
1971	Louis Lenz	2002	Steven M. Stein, PE
1972	Ronald Levine	2003	Andrew Braum, PE
1973	Henry Schulman	2004	Claudio Darras, P.E.
1974	Myron Goldberg	2005	Craig D. Marshall, P.E.
1975	John N. Haarhaus	2006	John Nally
1976	Richard K. Ennis	2007	Peter Gerazounis, PE, LEED AP
1977	Kenneth A. Graff	2008	Steven Friedman, PE, HFDP, LEED AP
1978	Evans Lizardos, PE, LEED AP	2009	Steven Giammona, P.E., LEED AP
1979	Albert Edelstein	2010	Nancy Román
1980	Ralph Butler	2011	Carolyn Arote
1981	Robert Rose, PE	2012	Brian Simkins, LEED AP
1982	Timothy Murphy, PE	2013	Andrew Manos, LEED AP BD+C
1983	Leon Taub, PE	2014	Richard L. Rosner, P.E.
1984	Raymond Combs	2015	Thomas J. Fields, P.E., LEED AP
1985	Edward W. Hoffmann	2016	Donald Kane, P.E.
1986	Jerome T. Norris, PE	2017	Andrew Dubel, P.E., LEED AP
1987	Abe Rubenstein, PE	2018	Richard Halley
1988	Michael O'Rourke		

PAOE POINTS FOR 2019/2020

Chapter Members	Chapter Operations	CTTC	Communi-cations	GGAC	History	Member-ship	Research Promotion	Student Activities	YEA	Chapter PAOE Totals
282	140	50	50	0	355	200	950	350	450	2,545

Student Activities

As we move forward in 2020, I am happy to announce the re-instatement of the Stony Brook University Student Chapter of ASHRAE. This is the only current student chapter for the ASHRAE Long Island chapter. If anyone is willing to volunteer some time to help them grow their chapter, please reach out to me.

For more information on establishing a student branch, or the resources allotted to student branches, please visit the ASHRAE link below:

https://www.ashrae.org/communities/student-zone/student-branches

Elizabeth Jedrlinic
Student Activities Chair
Elizabeth.jedrlinic@trane.com

Research Promotion

I would like to thank the companies who have participated in the annual 2020 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.

There's still time if you would like your company listed in the directory please contact me. 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 $2,600,000 with over 75 research projects on board. Our chapter is expected to raise approximately $20,400 towards the overall goal of which we have already raised $8170. 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 like say 'thank you' to all the contributors listed below whom have already donated to ASHRAE this year:

INDIVIDUALS

Brian Simkins
Peter Gerazounis, PE
Michael Gerazounis, PE
John D Nally
Andrew E Manos
Mordechai Chetrit
Evan Lizardos
Elizabeth Jedrlinic
Frank Paradiso
William Artis
Murat Bayramoglu
Matthew Vitrano
Michael Nigro
James Hanna
Richard Halley
Mike Razzano
Andrew Blom
Matthew Catan
Liset Cordero
Donald Kane, PE
Robert Fuchs

COMPANIES

Catan Equipment Sales
Accuspec, Inc
Gil-Bar Industries, Inc.
KLIMA - NY
Ultimate Power

CONTRIBUTIONS CAN BE MADE IN THE FOLLOWING WAYS:

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

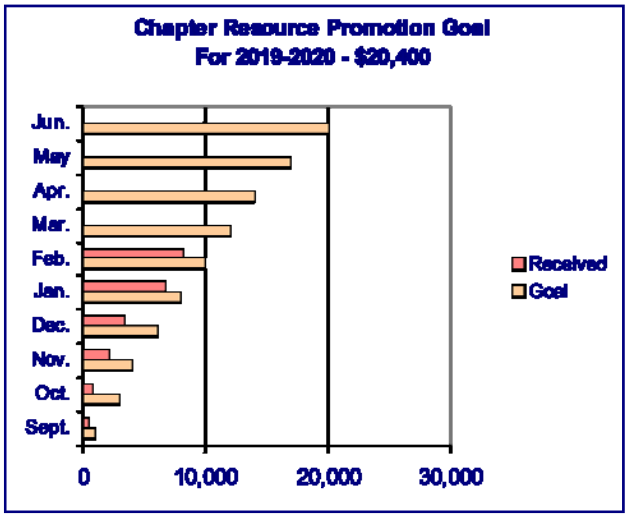
Andrew Manos, LEED AP BD+C
ASHRAE Research Promotion Chair
c/o Stony Brook University
Campus Planning, Design and Construction
Research and Support Services, Building 17, Suite 160
Development Drive, Stony Brook, NY 11794-6010

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 you accredit your contribution to the LONG ISLAND CHAPTER 006 ****



Thank you again for all of your support!

Andrew Manos, LEED AP BD+C - Research Promotion Chair

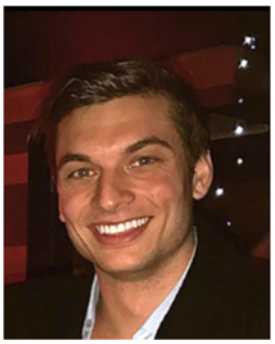
YEA

Michael Nigro
YEA Chair

*** Per person fee includes (2) drinks and appetizers with full access to the pool tables!**

We hope to see you there!

CTTC



We hope everyone is having a great start to 2020. We have many exciting speakers and activities planned for the new year!

Joke of the Month: The Plot Thickens

Why shouldn't you trust engineer's that use graph paper?

They are always plotting something!

ASHRAE Certification Review: OPMP – Operations And Performance Management Professional

Developed with the participation of APPA and the General Services Administration (GSA), the OPMP certification validates competency to do the following:

Manage facility operations and maintenance to achieve building performance goals, including those related to indoor environmental quality, health and safety.

Chapter Technology Article of the Month: ***(Following Pages)***

Matthew K. Catan
CTTC Chairman

CTTC (Cont'd).

Research Update on Lower GWP Flammable Refrigerants

Ten years ago, ANSI/ASHRAE Standard 34-2010, *Designation and Safety Classification of Refrigerants*, added a new optional flammability sub-classification, A2L, specifically for low-toxicity refrigerants with low burning velocity. In 2016, ASHRAE, DOE and AHRI began collaborating on a research program to provide the technical knowledge needed to facilitate and accelerate the safe use of these refrigerants (see sidebar, "How It Began"). ASHRAE committed to fund three initial research projects and as of December 2019, two of the projects have published their final reports. What follows is an update of the program.

RP-1806: Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update

Contractor: Gexcon, US; *Principal Investigator*: Scott Davis

The project's results will allow for the assessment of the overall risks of using flammable refrigerants in HVAC&R products, considering both ignition event probability and severity.

Prior research focused on the probability of an ignition event when using a flammable refrigerant in various types of air-conditioning and refrigeration equipment. After those results were published, discussion focused on the need to understand the severity or consequences of an event to fully understand the risks.

This project used a computer-based simulation to understand events' severity sides. It is a computational fluid dynamic software that incorporates advanced combustion models. The second objective is to update risk assessments and roll in the total risk, including both probability and severity.

The project's first phase was to take and validate an existing CFD-based simulation code against existing experimental combustion data, and as needed, modify or improve the CFD models to accurately represent ignition and combustion events involving Class 2L and Class 3 refrigerants. Second, run a series of scenarios or cases to simulate ignition and combustion events for several applications and types of equipment. Some

How This Research Began

In June 2016, the U.S. Department of Energy (DOE) invited ASHRAE and the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) into a research collaboration to establish a more robust fact base about the properties and the use of mildly flammable refrigerants. This $5.2 million research program, with financial contributions from DOE ($3 million), ASHRAE ($1.2 million), and AHRI ($1 million), is part of an ongoing global effort to phase down the use of high-GWP refrigerants and identify appropriate climate-friendly alternatives.

CTTC (Cont'd.)

ASHRAE MTG.LowGWP

- Created in January 2012
- Includes expertise of multiple ASHRAE TCs, SSPCs, and outside organizations
- Initially formed to coordinate activities related to lower GWP refrigerants within the TCs, SSPCs, etc.

In 2016, it was given responsibility for direction and management of several of the research projects on flammable refrigerants, three initial projects that ASHRAE committed to fund, plus more projects that followed.

output would look at the severity of the events by various relevant metrics such as the maximum temperature and the maximum pressure that occurs. Finally, take the simulation results and update the risk assessments with the predicted severity data to give a total picture of the risk.

In Phase 1, researchers discovered fundamental gaps in the burning velocity database they needed as inputs to their combustion models. It was necessary to perform additional empirical work. These values were added to the input dataset. Once the combustion models were updated, researchers took seven or eight datasets from researchers, simulated each scenario and compared the experimentally measured values to the simulation results. To ensure meaningful interpretation, they set up a model evaluation protocol that considered both qualitative and quantitative rankings of the dataset and how well the simulation from the CFD-model performed.

Discussion and evaluation indicated certain experimental datasets involving non-premixed combustion could not be reliably used for model validation and more data was necessary to ensure the CFD-model's accuracy in predicting consequence severity. Additional empirical testing and CFD-model validation were added to determine how good the simulation model is in the context of combustion severity events needed for the risk assessment. The additional experiments are in progress.

Once the CFD-model is updated and validated, a pilot study was proposed to use the validated CFD-model to predict the combustion consequences in context of these risk assessments. The study is updating a previously determined risk assessment for a given refrigeration application and equipment type and analyzing risk differences of A3 and A2L refrigerants. The results are expected to be released this summer.

The project's results have not yet been reviewed and approved.

TABLE 1 Identified gaps in U.S. standards and guidelines.

TOPIC	KEY IDENTIFIED GAP AREAS
TRANSPORT OF FLAMMABLE REFRIGERANT	Cylinder Theft Prevention, Proximity to Heat Sources During Transit
HANDLING AND STORAGE OF FLAMMABLE REFRIGERANT	Damage Protection, and the Location and Maximum Quantities of Cylinders Allowed in Storage Areas
TRANSPORT OF SYSTEMS CHARGED WITH FLAMMABLE REFRIGERANT	Limitations on Quantity of Systems Transported Per Shipment, Structural Integrity of Refrigerant Systems, and Damage Protection
PERSONNEL CERTIFICATION	Safety Training and Certification Requirements for Installers and Technicians
OCCUPATIONAL SAFETY	Work Prior to Installation/Servicing–Notification of Servicing, Safety Radius Around Worksite, etc.
	Work During Installation/Servicing–Electrical Component Repair, Response to Leakage Events, Leakage Testing, Refrigerant Charging
	Refrigerant Recovery/Venting–Venting Requirements For Hydrocarbon Refrigerants and Compressor/Compressor Oil Replacement
	Routine Testing And Emergency Procedures–Maintaining Open Air Passages and Entry Into Areas of Refrigerant Leakage Detection
	Acceptability of Brazing How and When Brazing May Be Safe
SYSTEM AND BUILDING DESIGN	Refrigerant Piping And Relief Devices–Non-Permanent Fittings For Flammable Refrigerants, Access To Valves/Joints, Relief Devices, and Discharge Quantities.
	Ventilation Features and Functionality–Ventilation System Power Supply/Circuitry, Ventilation Rate, Operating Modes, and Fan and Duct Design
	Combustion Equipment Co-Located With Refrigerant System Clearance From Combustion Equipment
	Refrigeration Leakage Detection and Alarms–Location Of Leakage Detection Devices and Alarm Activation Conditions. Ventilation Rates Recommended Levels of Ventilation
	Minimizing Buildup of Flammable Concentrations

RP-1807: Guidelines for Flammable Refrigerant Handling, Transporting, Storing and Equipment Servicing, Installation and Dismantling

Contractor: Navigant Consulting; *Principal Investigator:* William Goetzler

Introducing flammable refrigerants in the U.S. market could increase the need for specialized processes, training and/or certifications as part of risk mitigation. Several countries have developed substantive flammable refrigerant requirements and best practices to address handling, transport and storage of flammable refrigerants and the installation, servicing and dismantling of equipment using these refrigerants.

This research project investigated installation practices as well as servicing and handling aspects for all equipment that uses A2, A2L and A3 refrigerants in domestic

CTTC (Cont'd).

TABLE 2 Characteristics of fitting types.

FITTING TYPE	PRESS	COMPRESSION	FLARE (45°)
Maximum Working Pressure	48 bar (700 psi)	38 bar (550 psi)	38 bar (550 psi)
Temperature Range	–40 to 149°C (–40 to 300°F)	–54 to 93°C (–65 to 200°F)	–54 to 121°C (–65 to 250°F)
Available Tube Sizes	1/4 in. to 1-3/8 in.	1/8 in. to 1 in.	1/8 in. to 3/4 in.
Compatible Tube Materials	Copper	Copper, Aluminum, Plastics	Copper, Aluminum, Brass, Steel
Removable?	No	Yes	Yes

TABLE 3 Summary of assembly failures.

FITTING TYPE	FITTING SIZE	EXPERIENCED NORMAL	EXPERIENCED DIFFICULT	INEXPERIENCED NORMAL	INEXPERIENCED DIFFICULT
Brazed	1-1/8 in.	0/10	0/5	0/5	3/5
Press	3/8 in.	0/20	0/10	0/10	0/10
Press	1-1/8 in.	0/20	0/10	1/10	0/10
Compression	3/8 in.	1/20	0/10	2/10	0/10
Compression	3/4 in.	1/20	1/10	2/10	1/10
Flare	3/8 in.	0/20	0/10	1/10	0/10
Flare	3/4 in.	1/20	0/10	1/10	2/10

and international markets. The project identified gaps in U.S. standards and guidelines in terms of transport and handling, occupational safety and system and building design (*Table 1*, Page 35).

Future research and testing needs include: maximum storage quantity limits; storage distance from heat/ignition sources; acceptable quantities of systems in a shipment; electrical equipment isolation radius around worksite; brazing on flammable refrigerant systems; allowable residual refrigerant concentration in compressor oil; venting safety and requirements for hydrocarbons; clearance from combustion equipment; quantity of refrigerant discharged through pressure relief device; and requirements for fixed leak detector/monitor system use.

Matt Guernsey and Samuel McClive authored the ASHRAE Research Project Report that was published in December 2018. ASHRAE members can access the report for free at https://technologyportal.ashrae.org/.

RP-1808: Servicing and Installing Equipment Using Flammable Refrigerants: Assessment of Field-Made Mechanical Joints

Contractor: Creative Thermal Solutions; *Principal Investigator:* Stefan Elbel

Some joining techniques used in the HVAC&R industry can be prone to failure if precaution is not used during equipment installation, servicing and repair, particularly when using flammable refrigerants. This research investigated the robustness and leak tightness of field-made mechanical joints. This project's results provide input to ASHRAE standards and relevant codes related to refrigerant and system safety.

The three mechanical fitting types investigated include press or crimp fittings, compression fittings and flare fittings (*Table 2*). One-hundred fittings of each type were evaluated with three focuses: fitting assembly (*Table 3*); fitting durability through a series of harshness tests; and leak rates of different fittings.

Results show press fittings have the quickest assembly time, lowest assembly failure rate, highest durability and relatively higher, yet very reasonable leak rate (~1.0 g/yr). Compression fittings have the second quickest assembly time and lower leak rate (~0.4 g/yr). Flare fittings have significantly longer assembly time, are most prone to leaks and have the lowest leak rate when properly tightened (~0.2 g/yr).

In terms of leak rates, press fittings are fairly consistent while compression and flare have greater variation.

CTTC (Cont'd.)

Identifying Odorants

Using flammable refrigerants with low GWP in household refrigerating appliances or air-conditioning equipment means there must be a way to detect them in case of leaks. Because R-290/propane (A3) or R-32/difluoromethane (A2L) are odorless and colorless, they are difficult to detect.

Adding odorants to refrigerants isn't common in the HVAC&R industry. ASHRAE Research Project RP-1794 (Eric Fossell, principal investigator; Jensen Hughes, contractor) focused on identifying odorants from other industries that can be potential candidates for flammable refrigerants based on their physical properties, odor and toxicity thresholds and HVAC&R appliance material compatibility. A literature survey identified 200 possibilities and ultimately winnowed those down to four: hydrogen sulfide, carbonyl sulfide, trimethylamine and methyl mercaptan. More analysis and testing is necessary to fully evaluate these candidates for suitability in refrigerating and air-conditioning systems.

This is the first research project in what will likely be a series of projects that explore the possibility of introducing odorants into refrigerant systems with compromising the systems, said Michael Vaughn, P.E., Member ASHRAE, ASHRAE's manager of research and technical services. The ASHRAE Research Project Report was published in March 2019. ASHRAE members can access the report for free at https://technologyportal.ashrae.org/.

Technician experience level generally has the most significant effect on fitting assembly time and success, although to a lesser extent for the press fittings. Smaller flare fittings were prone to failure during repeated freezing and thawing of water on the tube.

Neal Lawrence and Sharat Raj authored the ASHRAE Research Project Report that was published in December 2019. ASHRAE members can access the report for free at https://technologyportal.ashrae.org/. More details are available in the final report.

Conclusion

Future research projects are in various stages of development. For example, the contract has been awarded for RP-1855, Determination of the Impact of Combustion Byproducts on the Safe Use of Flammable Fluorinated Refrigerants, with the project kickoff meeting held in January 2019. ■

History

This month I would like to bring back one of the trivia quizzes that was first run in 2003 by past president John Nally! I like looking at old trivia, because even if you don't know the answer you learn something new about our chapter.

Listed below are ten questions relating to a specific year and event of our chapter. See how many you can answer by matching them up. No peeking at the answers. Good luck.

Questions

1. Our chapter has hosted six CRC summer conferences. When was the second conference held?
   A. 1970 B. 1987 C.1989

2. In this year our chapter held its silver anniversary dinner dance celebration.
   A. 1968 B. 1983 C. 1994

3. A motion to allow paid advertising in the monthly bulletin was made and approved in this year.
   A. 1977 B. 1979 C. 1981

4. A mailing list of the members of our chapter was first created in this year.
   A. 1958 B. 1962 C. 1967

5. What year did Evans Lizardos serve as president of our chapter?
   A. 1969 B. 1978 C. 1984

6. The front cover of the ASHRAE Journal featured an aerial view picture of the Grumman cogeneration plant in this year.
   A. 1986 B. 1988 C. 1991

7. Our chapter celebrated the ASHRAE Centennial with historical displays and presentations, during an April dinner meeting at the Maine Main Inn this year.
   A. 1959 B. 1987 C. 1995

8. What year did Claudio Darras become the president of our chapter?
   A. 2004 B. 1998 C. 1986

9. Abe Rubenstein won the Region 1 golden ribbon award for history in this year.
   A. 1977 B. 1983 C. 1988

10. Our chapter first started meeting at the Westbury Manor in this year.
    A. 1999, B. 2001 C. 2003

Matthew Vitrano
History Chairman

Grassroots Government Activities Committee (GGAC)

I'm looking forward to seeing everyone at the next meeting. I'd like to remind everyone that we are actively in the process of planning an event for GGAC called a "Day on the Hill". We'd love to have a few volunteers to come by and get involved. If you're interested, please let me know as soon as you can. We're planning this with several regional chapters and I would greatly appreciate any participation. Details are still being ironed out.

New York Provides $2 Billion for Energy Efficiency and Building Electrification

On January 16, New York Governor Cuomo announced that New York investor-owned utilities will provide about $2 billion in investments for energy efficiency and electrification programs. In addition, the Governor is directing New York electric utilities and NYSERDA to develop a statewide heat pump program. More information can be found here.

New York Holds Webinars on Emission Reduction Requirements in its Climate Act

The New York Department of Environmental Conservation will hold two webinars concerning emission reduction regulations required by the Climate Leadership and Community Protection Act. The webinars will be offered on Friday, February 14 (11:30 am –12:30 pm) and Friday, February 28 (11:30 am – 12:30 pm), and a recording of the webinars will be later made available. For more information about these webinars, as well as to review a draft of the regulations and learn how to submit comments, click **here**.

Department of Energy Invests $74 Million in Building and Construction Technologies and Innovations

On February 10, the Department of Energy announced that they are providing $74 million to 63 selected projects to "research, develop, and test energy-efficient and flexible building technologies, systems, and construction practices to improve the energy performance of our Nation's buildings and electric grid." To learn more about the awardees, click **here**.

Andrew Blom

Grassroots Government Activities Chair

Refrigeration

CRYOGENICS (EXCERPT FROM THE ASHRAE HANDBOOK 2018 CHAPTER 47)

CRYOGENICS

Cryogenics is term normally associated with low temperatures. However, the location on the temperature scale at which refrigeration generally ends and cryogenics begins has never been well identified. Most scientists and engineers working on this field restrict cryogenics to a temperature below -235□F (225□R), because the normal boiling points of most permanent gases (e.g., helium, hydrogen, neon nitrogen, argon, oxygen, air) occur below this temperature. In contrast, most common refrigerants have boiling points above this temperature.

GENERAL APPLICATIONS

The application of cryogenic engineering has become extensive. In the United States, for example, nearly 30% of the oxygen produced by cryogenic separation is used by the steel industry to reduce the cost of high-grade steel, and another 20% is used in the chemical process industry to produce a variety of oxygenated compounds. Liquid hydrogen production has risen from laboratory quantities to over 200 tons a day. Similarly, liquid helium has required construction of large plants to separate helium from natural gas cryogenically. Energy demand likewise has accelerated construction of large baseload liquified natural gas plants. Applications include high field magnets and sophisticated electronic devices that use the superconductivity of materials at low temperatures. Space simulation require requires cryopumping.
The food industry uses large amounts of liquid nitrogen to freeze expensive foods. Cryogenic surgery is performed to treat disorders such as Parkinson's disease. Medical diagnosis uses magnetic resonance imaging (MRI) which requires cryogenically cooled superconducting magnets. Finally, the chemical processing industry relies on cryogenic temperatures to recover valuable heavy components.

Table 1 Key Properties of Selected Cryogens

Cryogen	Normal Boiling Temperature, °R	Critical Temperature, °R	Triple-Point Temperature, °R	Density of Saturated Liquid at 1 atm, lb_m/ft^3	Density of Saturated Vapor at 1 atm, lb_m/ft^3	Volumetric Enthalpy of Vaporization at 1 atm, Btu/ft^{3*}	Volumetric Enthalpy to Warm Vapor to 537°R at 1 atm, Btu/ft^{3*}
Helium	7.61	9.35	—	7.787	1.046	69.4	5212
Hydrogen	36.70	59.74	25.12	4.420	0.0836	845.5	4005
Neon	48.79	80.09	44.21	75.35	0.5979	2774	7476
Oxygen	162.34	278.25	97.85	71.24	0.2789	6535	8707
Nitrogen	139.24	227.15	113.67	50.32	0.2879	4303	6370
Argon	157.14	271.24	150.85	87.11	0.3604	6035	7629
Methane	201.00	343.02	163.25	26.37	0.1134	5790	7125

*Per cubic foot of saturated liquid cryogen at 1 atm.

Helium

Helium exists in two isotopic forms, the more common being 4. The rarer form, helium 3, exhibits a much lower vapor pressure, which has been exploited in the helium dilution refrigerator to attain temperatures as low as 0.03 to 0.0□R. Whenever helium is referenced without isotopic designation, it can be assumed to be helium 4.

Hydrogen

A distinctive property of hydrogen is that it can exist in two molecular forms: orthohydrogen, parahydrogen. These forms differ by having parallel (orthohyrogen) or opposed (parahydrogen) nuclear spins associated with two atoms forming the hydrogen molecule. At ambient temperatures, the equilibrium mixture of 75% orthohydrogen and 25% parahydrogen as designated as normal hydrogen. With decreasing temperatures, the thermodynamics shift to 99.79% parahydrogen at -423□F (36.7□R), the normal boiling point of hydrogen. Conversion from normal hydrogen to parahydrogen is exothermic and evolves sufficient energy to vaporize ~1% of the stored liquid per hour.

Refrigeration

Oxygen

Unlike other cryogenic fluids, liquid oxygen (LOX) is slightly magnetic. Its paramagnetic susceptibility is 1.003 at its normal boiling point. This characteristic allows use of a magnetic field in a liquid oxygen dewar to separate the liquid and gaseous phases under zero-gravity conditions.
Nitrogen

Liquid nitrogen (LIN) is of considerable importance as a cryogen because it is a safe refrigerant. Because it is rather inactive chemically is neither explosive nor toxic, liquid nitrogen is commonly used in hydrogen and helium liquefaction cycles as a precoolant.

Liquefied Natural Gas (LNG)

Liquefied natural gas is the liquid form of natural gas, consisting primarily of methane, a mixture of heavier hydrocarbons, and other impurities such nitrogen and hydrogen sulfide. Liquefying natural gas reduces its specific volume by a factor of approximately 600 to 1, which makes handling and storage economically possible despite the added cost of liquefaction and the need for insulated transport and storage equipment.

ASHRAE handbooks provide vast amount of information for engineers at all levels. Take a look.

Murat Bayramoglu
Refrigeration Chair

History (Cont'd.) - Answers to Trivia Quiz (From Page16)

Answers

1. **C. 1989**
2. **B. 1983**
3. **C. 1981**
4. **A. 1958**
5. **B. 1978**
6. **C. 1991**
7. **C. 1995**
8. **A. 2004**
9. **C. 1988**
10. **C 2003**

Membership Promotion

Officially, a month into the new year and it's check in time for your New Year Resolutions! So, here's your reminder to the commitments you made to yourself. What were they? Are you holding yourself accountable? Some of the most common New Year Resolutions are:

- Improve a relationship
- Learn a new skill, hobby or furthering your education
- Drink less alcohol
- Find another or better job

Well, if any of these looks to be familiar, then membership in the epitome of chapters (also known as the Long Island Chapter) is one of the most perfectly fit group to get you to some of those goals. Through our chapter improve your relationships with colleagues within the industry, as well as you could volunteer. Volunteering through research opportunities, fundraising, becoming a committee member, etc.…an opportunity to restore and/or build a relationship to volunteering in our great organization are endless!

If learning a new skill, hobby or furthering your education, then you should know that our Long Island chapter offers Professional Development Hours or Continuing Education credits every month. PLUS, there are discounted rates for our members, while you get to enjoy a great meal. This is a great value and convenience for our members that are maintaining their LEED AP or P.E. credentials.

Being a connected community that helps each other, it's a natural fit for anyone looking to advance their career. Within our chapter, our members can network to meet fellow like-minded HVAC professionals. This is critical ASHRAE portion that's important to all participants from the seasoned professional, new members transitioning from students to professional memberships.

As far as the less drinking portion goal…sorry…we might not be able to help you here…BUT three out of the four goals isn't that bad!

In the end, we'd like to thank our new members who have considered the benefits of membership and who have decided to join our community. With the continued growth, the Long Island chapter grew in February by three (3) members. Our new members continue to offer a varied skill set that makes them valuable additions to our community. LONG ISLAND WELCOMES YOU!

I would like to informally welcome our new members this month:

1. Vincent Peter Catalano
2. Robert C. Loverro
3. Michael P. DeRitis

Looking forward to another great month and thank you in advance for your support, time & guidance.

Michael Razzano
Membership Promotion Chair

Elizabeth Jedrlinic & Michael Nigro
Membership Promotion Co-Chair

BOG Meeting Minutes

BOG September Meeting Long Island Chapter
January 14, 2020 / 5:00 PM / Location: Westbury Manor

Board of Governors		
President	Frank Paradiso	X
President Elect	James Hanna	X
Vice President	William Artis	X
Financial Secretary	Mathew Vitrano	X
Treasurer	Murat Bayramoglu	X
Secretary	Michael Nigro	X
BOG-1	Elizabeth Jedrlinic	X
BOG-2	Andrew Blom	X
BOG-3	Mathew Catan	X
BOG-4	Michael Razzano	
BOG Immediate President	Richard Halley	X
Committee Member	Matthew Catan	X
Committee Member	Brian Simkins	X
Committee Member	Andy Manos	X

President (Frank Paradiso) Chapter Operations [min-600/Par-1200) Total Points: 80

- Review Minutes. Quorum achieved 5:12
- Newsletter: Newsletter and meeting notice separate.
  Please try to have your articles to Liset by Monday January 27th.
- Who is attending the AHR/Winter Conference?

Programs (James Hanna)

- Fundraising opportunities for cocktail hour sponsorship
- Suggestions for topics & presenters for the remaining programs open slots (I believe remaining months are spoken for)
- Field Trip: Early thoughts with Membership committee
  Sterilization Plant , May 2020
  Brewery
  Dry-aging Room

Chapter Technology Transfer (Matthew Catan, Murat Bayramoglu) [min-550/par-1050) Total Points: (50)

- Work with James (Programs) for PDH certified presentations
- PDH Sign in sheet and Presentation Survey sheets

Financial Secretary (Matthew Vitrano)

- Develop Monthly finance report with using actual bank statement with all the credits and debits accounted for.
- Review at BOG meetings - monthly income and spending.
- Special THANK YOU to Klima and Trane for chapter donations

Treasurer (Murat Bayramoglu)

- Account status? Received Treasurer's financial report
- 2019-2020 Long Island Chapter Assessment ($2,688.00) by December 31, 2019. (Paid as of last month)
- All hands on deck to seek and fundraise sponsorships for chapter operations
- Invoice/update Newsletter Advertisements early in the chapter year (Andy with help from Matthew V. & Michael N.)

Government Affairs (Andrew Blom) [min-500/par-650] Total Points (0)

- Activities:
- Update local Politician list
- Public relations Andy Manos
- Engineer's Week - February - Topic: Commissioning

Historical (Matthew Vitrano) [min-100/par-300] Total Points (355)

- Articles/interviews of past president's Potential life-members/fellows or historical journal articles.
- Boards are going to be updated.

BOG Meeting Minutes

Honors and Awards Chair (Brian Simkins)
- Service awards/Technical Awards
- Candidate Projects
- If there are any projects let Brain know

Research Promotion (Andy Manos, Michael Nigro, Matthew Vitrano) [min-800/par-1050] Total Points (950)
- Vendor Book status.
- 50/50, (other ideas to increase raffle purchases)
- We have achieved full circle, Thank you to everyone for their generous donations.
- RP Goal is $20,400.
- 30% by December 30th
- 3 new members this month

Refrigeration (Murat Bayramoglu)
- Northrop Grumman visit (Mike R)

Membership Promotion (Michael Razzano, Co-chairs, Elizabeth Jedrlinic, Michael Nigro) [min-500/par-800] Total Points (200)
- Membership Upgrades: 10 new members this year.
- Discussion/suggestions on increasing chapter meeting attendance & Increase chapter membership:.
- Plan additional social events with YEA?
  - Last month's event at Plattduetsche Park Nov 22nd went well
  - Another Social event (YEA + Membership?)

Student Activities (Elizabeth Jedrlinic) [min-500/par-800] Total Points (350)
- Stony Brook, Suffolk Community College, Hofstra, NYIT and others.
- Discuss which local universities/colleges student chapters are active and which can be re-activated.
  - Update on Stonybrook student chapter? Stonybrook confirmed re-set up as a student chapter.
- Any ideas for social events that can include students
- Liz to begin working on presentation on STEM
  - Andy to send school list to Liz
  - Mike R to look into Chaminade

YEA (Michael Nigro) [min-300/par-800] Total Points (450)
- 2019 Collaborate with Membership Promotion and Student Activities for Social events throughout the year in order to interest new chapter involvement, volunteers etc.
- Thoughts on springtime BBQ?
- Great South Bay Brewery YEA event - Planning for Beginning of March – Small Room Selected

Reception & Attendance (Matt Catan, Michael Razzano)
- Crushing it 2.0 :
  - Actively monitor membership list at reception.

Electronic Communications [min-250/par-650] (50)
- Recovery of old address (Still Ongoing)
  - Email from Tom Fields, will investigate
- Add Historical Newsletters to website (2018-19 Chapter year)
- E-Communication committee
  - Webcasting meeting idea for LI chapter (Society hosts go to meeting.)
  - Looking for volunteers to assist Bill and learn to maintain:
    - Email service / Weebly website / Linked In

Golf (Peter Gerazounis/Tom Fields)
- May 4th 2020: Cherry Valley Golf event.

New Business…Dinner at Tony Romas for Region 1 dinner Approved

Next BOG Meeting: **2/11/20 @ 5:00 PM**
Location: **Westbury Manor**

Join ASHRAE on Social Media!

ASHRAE Social Media

Follow **ASHRAE on Twitter @ashraenews** for up-to-date news, events, and articles about HVAC&R. Search **#MyASHRAE** on Twitter to see member photos from around the world.

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Does It Cost More To Build Green? Benefits include reduced operating costs & construction waste.

Online Thermal Comfort Compliance Tool Included In New ASHRAE User's Manual.

87% of households in the US have #AC, 5% do in India. India's tough choice on air-conditioning and climate.

The November issue of the Journal is tested for binding strength to see how many times a page can be turned before the binding would fail.

Harvard & SUNY Upstate Medical University find that workers are healthier and happier in certified green buildings.

ASHRAE Standard 90.1 has been redefining energy savings since 1975. A new version is available now.

Adapting historical buildings for sustainable reuse.

Get To Know ASHRAE

ASHRAE CERTIFICATIONS

ASHRAE, accredited by ANSI under ISO/IEC 17024 for the High-Performance Building Design Professional (HBDP) program, has certified more than 2,000 Built Environmental Professionals.

ASHRAE certification programs:

- Are developed by industry practitioners who understand the knowledge and experience that are expected for superior building design and system operation
- Assure employers and clients of subject mastery
- Serve as a springboard for continued professional development
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FOR MORE INFORMATION GO TO - https://www.ashrae.org/education--certification/certification

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If you would like to place an advertisement in the Long Island Sounder, please contact our Chapter Financial Secretary, James Hanna @ 718.269.3768 or by email at finsec@ashraeli.org for further details. Thank you.

Rates (includes all issues September-June):

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