ASHRAE
REGION I
BOSTON CHAPTER

NorthEastAire

Volume LV, Issue No. 4 December 1, 2022

ASHRAE Boston Chapter

Special points of interest:

October Meeting

Tuesday December 13, 2022

Main Meeting Topic:

Heat Exchangers

Presenter:

Tracey Putnam

Commercial Markets—Sales Manager

Alfa Laval

Tech Session Topic:

Heat Trace

Presenter:

Mark Orgettas

Heat Trace Product Manager

Emerson Swan Co. inc.

Register Here!

Where:

DoubleTree Suites by Hilton Boston/Cambridge

400 Soldiers Field Road

Boston, MA 02134

Time:

4:00-5:00 BOG Meeting (all are welcome!)

5:30-6:15 Tech Session

6:30-7:00 Plated Dinner

7:00-8:00 Main Meeting (1 PDH)

Cost:

Members—$50

Non Members—$60

ASHRAE Student Members with RSVP—Free

President
Vineet Nair
CRB
c001@ashrae.net

President Elect
Will Fisher
FIA, Inc.
c001pe@ashrae.net

Vice President
Lance Brown
AKF
c001vp@ashrae.net

Secretary
Kiersten Washle
CMTA
c001sec@ashrae.net

Treasurer
Lucas Rowe
Accuspec, Inc.
c001tr@ashrae.net

BOSTON CHAPTER OFFICERS 2022-2023

President's Message

President
Vineet Nair
CRB

Happy Holidays to everyone!

Hope everyone had a great Thanksgiving with family and friends. I would like to thank everyone that participated and helped in organizing our chapter's product show in November. The day provided an opportunity for over 400 registrants to engage with 60 vendors from New England. We also offered two technical sessions and a session geared towards YEA members on 'Short List Success'. The overall feedback received was positive, and we hope to provide many more events of the same caliber soon.

We start December with a YEA night on the 7th of December at Night Shift Brewing, the event is currently full, but we are accepting members to waitlist themselves, in case a spot opens. That event will be followed by our chapter meeting on the 13th of December. We are hosting our joint meeting with ASPE Boston Chapter at the Doubletree Boston-Cambridge. Our main session topic meeting will be on Heat Exchangers with Tracey Putnam from AlfaLaval and our tech session meeting with Mark Orgettas from Emerson Swan.

I would like to end by thanking all our sponsors that have supported us through 2022. We appreciate your support and I hope to work with you to make this program stronger to ensure our members receive the best available technical sessions and are always up to date with newer technologies.

For more information visit the ASHRAE Boston website and follow us on LinkedIn. As always, we appreciate your feedback. Please email me at vineet.nair@mail.ashrae.org or any of our volunteers with questions or concerns.
Look forward seeing everyone the evening of December 13th!

Thank you all,
Vineet Nair
ASHRAE Boston Chapter President 2021-2022

Welcome New ASHRAE Boston Members

We welcome those that joined our chapter this summer!

- Shahzer Syed
- Mike Papetti
- Nan Ma
- Kristopher Poirier
- Tony Menear
- Dale Bleicken
- Michael Lunny
- Deanna DiPilato
- Donald Chaisson

December Meeting

Tech Session

Mark Orgettas

Heat Trace Product Manager

Emerson Swan Co. Inc.

Discussion of Heat Trace systems for Plumbing, Mechanical, Fire Protection and Roof/gutter systems. Presentation will cover Freeze Protection, Grease Waste Maintenance, Hot Water Temperature maintenance, and Snow mitigation. In depth discussion on how to select the proper watts per foot and how pipe diameter, power, insulation thickness, and insulation type all have an effect on which wattage cable is to be selected as well as how many circuits are needed for a project. We will discuss the push for electrification and how using Hot Water Maintenance heat trace lessens time to tap as well as addresses issues engineers have balancing different pressure zones. Using heat trace will help address the recirculation requirements engineers are challenged with to come as close to the fixture as possible. Lastly, we will learn how using Hot Water Maintenance heat trace can contribute to LEED.

Presenter

Mark has many years of experience in the Plumbing, and HVAC industry. Much of this experience comes from on the job training and solving problems with contractors in the field. He has worked with several of the finest in the area of heat tracing for his experience and knowledge in the industry. He works with Plumbing Engineers, HVAC Engineers Contractors, and Distributors helping to assist with product and system development for Domestic and Non Domestic Hot Water systems. Emerson Swan's motto is to be there for customers from "concept to commissioning, and beyond". He also is a Grade III Industrial Waste Water licensed Engineer within the state of Massachusetts.

Main Presentation

Tracey Putnam, BS ChE

Commercial Markets — Sales Manager

Designing a plate and frame heat exchanger is not as straightforward as it may seem. We all understand the principles of heat transfer, however fluid mechanics play a very large role in the performance and uptime of a heat exchanger. An improperly designed heat exchanger will cause other equipment to work harder and increase the energy consumption in the HVAC system - we must learn to look beyond the initial capital investment and consider the total cost of ownership. AHRI has helped to standardize manufacturers' designs but there are parameters that engineers must still consider and verify. In today's presentation we will discuss:

- Basic heat transfer theory
- The effects of temperature approach on the size and cost of a heat exchanger
- Hydraulic design and it's effect on performance and fouling
- AHRI – what it is and when it's applicable

Presenter

Tracey Putnam holds a degree in Chemical Engineering from Penn State University. She began her career as a process engineer at a toll manufacturer where she was responsible for new product start-ups. This provided initial exposure into what is involved in procuring equipment, operator training and commissioning a new process.

She spent the first 9 years of her career at Alfa Laval as an applications engineer focusing on technology conversion and energy efficiency within the Petrochemical and Refining markets. In 2010, Tracey transitioned to the Commercial side of the business and has been concentrated on Comfort cooling ever since. Her mission is to educate the engineering community on how to properly specify plate heat exchangers to optimize energy usage, reduce maintenance requirements and total cost of ownership.

Historical News

By: Eric Edman - BR+A

Hello to all of you,

Eric Edman
Historian

We recently had a rather interesting request from the Toronto chapter for "anything" historical related to the beginnings of ASHRAE. Yes, the 1895 beginnings.

This request went "viral" to every chapter worldwide. The first worldwide "historical request" that I know of -and it made history in that every region and over 60% of all chapters had something to submit or reply with.

Your favorite historian shared the power point presentation that was made and used at one of our past presidents' nights (Feb 2019) about our humble beginnings. This was interesting to several chapters from far and away, and we had many after hours exchanges.

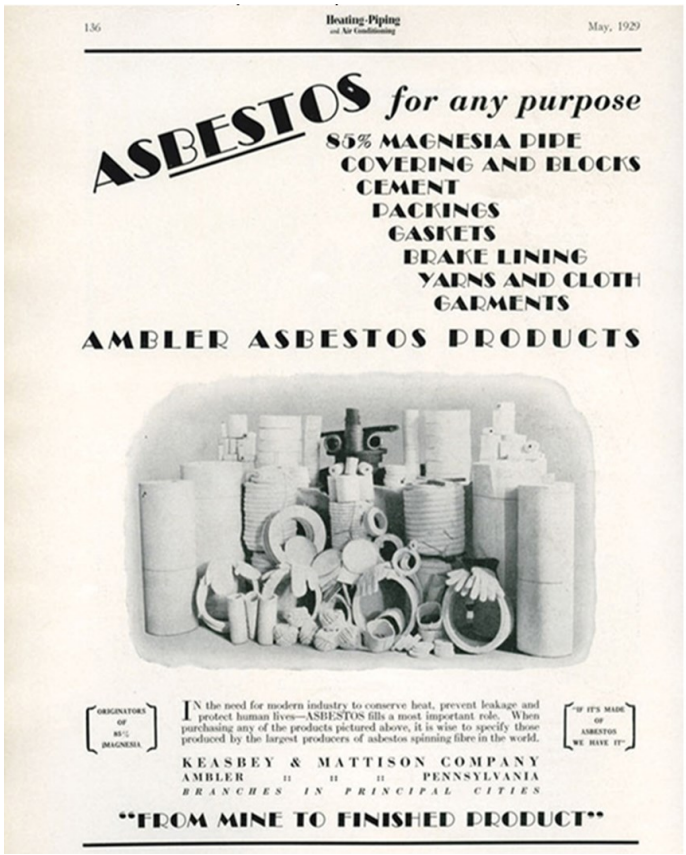
There was some interesting reading from other places for sure. Someone from KC has a sense of humor, and shared some old advertisements.

I did have quite a chuckle from the edition of HPAC magazine in 1929 (yes it has been around that long). I share this with all of you in case you need some extra insulation this season. Can you imagine Asbestos in stock and ready to ship? All sizes and shapes-apparently no supply chain problems at all. I put in a very large order to beat the Christmas rush.

I will say peace to all of you, and a Merry Christmas and prosperous 2023. See you next year.

Eric

c001his@ashrae.org



REWIND

ASHRAE Boston Chapter Product Show 2022

Well, the show is history, but, we would like your feedback on anything good - AND not so good about the show. Good so we do it again, and the not so good so we do not duplicate.

Your voice matters, we do listen, and please do not be bashful about what you did not like.

We do have a request to be made from anyone who has them to share pictures for historical purposes.

The Show committee was not just the two of us. It was quite a few more, and we thank all of them for their help and all of you for attending. By most accounts the show was successful.

Show Co-Chairs 2022

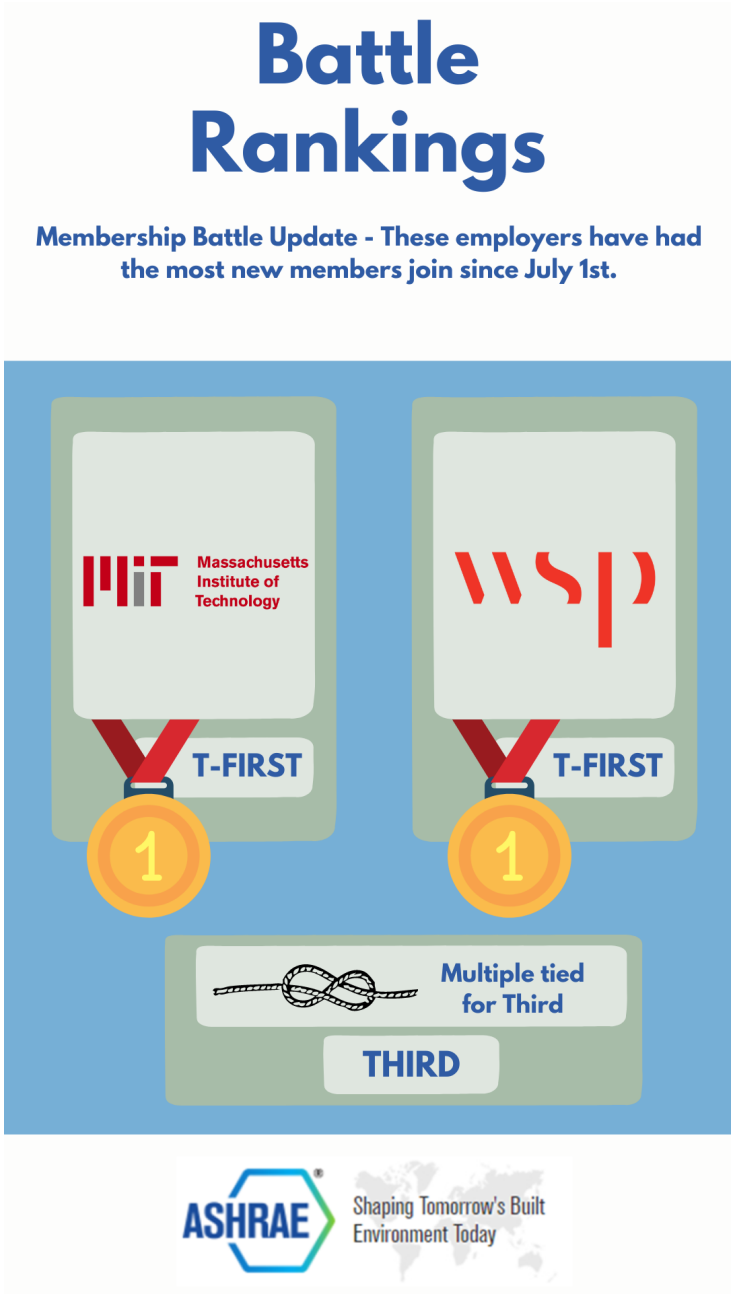
Amy Gebhardt
781-807-0664
agebhardt@emersonswan.com

Eric Edman
617-548-7054
eedman@brplusa.com

YEA Update

We wrapped up 2022 with a fun event at the Nightshift Brewery, thank you to all who came to the event. We hope you join us at the last meeting of 2022 on 12/13 at the Doubletree in Cambridge. Be on the lookout for the next event in February as we will take on Darts at the Flight Club in Seaport. There will be limited space available so, please pay attention to your email.

Please contact Matt Hallock at matt@trumbullcampbell.com or Mary Kandaras Mary.Kandaras@BuroHappold.com if you have any questions or suggestions about this upcoming year.



Presidential Award of Excellence — ASHRAE Boston Chapter

Boston Chapter - 2022-2023

Chapter Members	Membership Promotion Points (1600)	Student Activities Points (800)	Research Promotion Points (1050)	History Points (300)	Chapter Operations Points (1200)	Chapter Technology Transfer Points (1050)	Government Affairs Points (1000)	Electronic Communications Points (700)	YEA Points (900)
1002	1315	515	190	245	260	200	-	-	1100

History Special Feature
Eric Edman

Eric Edman
Historian

I do my best to inspire young minds and get them to think about HVAC as a career. I may be the historian, but we need to work on the future. We all need to do more to inspire young generations. HVAC takes us everywhere from a submarine to the space station. Mankind does not go far without HVAC anymore. Therein lies a great opportunity to do a lot of creative things for the future of mankind. This monthly special feature is about HVAC on a nuclear submarine. I was fortunate to visit the Groton, CT submarine museum when my son was in Scouts and got a peek at things down under. I made full use of this visit to talk about HVAC on sailing vessels. Something many of you probably have never thought about.

The USS Nautilus (SSN 571) Docked in Groton, CT

In July of 1951, Congress authorized construction of the world's first nuclear powered submarine. The Navy announced that she would be the sixth ship of the fleet to bear the name NAUTILUS. Her keel was laid by President Truman at the Electric Boat Shipyard in Groton, CT in June of 1952. The NAUTILUS was launched on January 21, 1954 with First Lady Mamie Eisenhower breaking the traditional bottle of champagne across NAUTILUS' bow as she slid down into the Thames River. Eight months later, on September 30, 1954, NAUTILUS became the first commissioned nuclear-powered ship in the United States Navy.

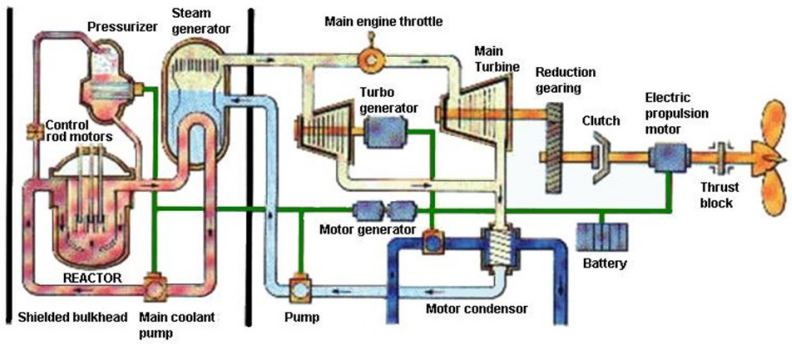
All modern submarines have some form of air conditioning. It is no surprise the air conditioning keeps the interior of the submarine cool for the crew (literally under pressure) and removes moisture from the air, which can help to prevent the growth of mold and mildew. Nuclear submarines primarily use their own surplus electricity to produce oxygen by electrolysis of water. The nuclear submarine air conditioning system is an important link in many of the submarine's subsystems. It has an impact on the survival of the crew.

Plenty of room for ductwork eh?

Nuclear submarines lack the space required for recovery devices for every type of gas, and it is not possible to install one for each gas. The cooling system must have an ammonia gas alarm device to prevent toxic gas and flammable gas from leaking and exploding. Freon, as a gas, is difficult to decompose and collect, unlike inert gas. When a nuclear submarine emerges from the water or when it arrives at port, ventilation can be used to completely discharge the various gases emitted. Nuclear submarine cruising is usually about 750 feet below sea level. The most heat taken away by the cooling water pump is the (waste) heat from the nuclear reactor, while the least heat is taken away from the air conditioning. Air conditioning in nuclear submarines produces no noise unless a compressor is used. Because nuclear submarine subsystems are redundant, a failure does not result in disaster for the submarine. A skilled crew is of utmost importance. Another place where failure is not an option.

To reduce noise, engineers will avoid selecting air conditioning compressors as a noise reduction strategy if needed. By anti-submarine theory, as a submarine dives underwater, it is required to discharge exhaust gas at regular intervals. When nuclear submarines emit gas underwater, no bubbles appear. This is because the pressure is greater, the water temperature is lower, and the gas's solubility is greater when the gas is at sea level. Most advanced nuclear submarines can stay underwater for four months. Nuclear submarines have significantly more internal space than conventional submarines, allowing them to carry more daily necessities. The temperature in and on a submarine can vary depending on where in the world it is and what time of year it is. Generally, the temperature underwater is milder than on the surface, but can get quite warm in the tropics.

Pressurized-water Naval Nuclear Propulsion System



Flow Diagram - Chilled water side not shown for simplicity

In most cases, the submarine receives oxygen, as well as air, from a variety of sources. The first source is from an oxygen generator, which can generate oxygen by electrolysis of water. A pressurized tank is also used as an escape device on submarines, and oxygen canisters, are also used as escape devices.

Submarine refrigeration is used to keep food and other perishables fresh while aboard a submarine. The process works by circulating cold air around the submarine's storage areas, keeping the temperature at a consistent level. This prevents food from spoiling and keeps it fresh for the crew to consume.

The crew of a submarine work in hot and humid conditions, which can reach up to 100F on occasion. Their lives are also constantly in danger due to their ability to successfully execute their missions. The crew of a submarine performs an important role in our nation's security, and they deserve our respect. It is our responsibility as citizens to salute their dedication and bravery, and we should do so by continuing to support their efforts.

If you are ever interested, there is a WW2 era submarine in Fall River, MA at Battleship Cove as well as the Nautilus at Groton, CT. Warning to all tall people….As a tall person, I banged my head in these submarines a lot- so most Navy personnel were smaller height individuals. Visits are well worth your time, and a good rainy day activity with those younger generations to whom we are leaving this planet.

Hope you all have wonderful holidays. See you next year.
Eric

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EVENTS CALENDAR

Date	Event	Location	Event Information
~~Sept. 13, 2022~~	~~September Meeting~~	~~Doubletree Boston-Cambridge~~	~~Topic: COMPRESSOR TECHNOLOGY Presenter: Mark W. Fly, PE~~
~~Oct. 11, 2022~~	~~October Meeting~~	~~Embassy Suites Waltham~~	~~Topic: DECARBONIZATION OF EXISTING BUILDINGS Presenter: Joe Dussault & Jesse Stallions~~
~~Nov. 2, 2022~~	~~Product Show~~	~~Marriott Quincy~~	~~Details on Page 4~~
Dec. 7, 2022	**YEA Social**	**Night Shift Brew**	**Details here.**
Dec. 13, 2022	**December Meeting**	**Doubletree Boston / Cambridge**	**Topic: HEAT EXCHANGERS Presenter: Tracey Putnam**
Jan. 10, 2023	January Meeting	Embassy Suites Waltham	Topic: LIQUID SUBCOOLING Presenter: Peter Fung
Feb. 15, 2023	February Meeting	Doubletree Boston / Cambridge	Topic: DEI & ASHRAE: DOES IT REALLY MATTER? Presenter: Devin Abellon, P.E.
Feb. 21, 2023	YEA/DiA Joint Social	TBD	Details to follow.
Mar. 14, 2023	March Meeting	Embassy Suites Waltham	Topic: GEOTHERMAL SYSTEMS Presenter: Andrew Kozak, P.E.
Mar. 2023	YEA Event	TBD	Details to follow.
Apr. 11, 2023	April Meeting	TBD	Topic: PANEL DISCUSSION Presenter: TBD
Apr. 2023	DiA Event	TBD	Details to follow.
May 9, 2023	May Meeting	TBD	Topic: Past Presidents & History Night Presenter: Eric Edman
May 2023	ASHRAE Golf Outing	Granite Links	Details to follow.
June 2023	YEA Event	TBD	Details to follow.

*The calendar is subject to changes, please see the ASHRAE Boston Chapter website for the most up to date information!

Boston ASHRAE Facebook

Boston ASHRAE Twitter

Boston Monthly Meetings	ASHRAE Society—Complete List
Boston Chapter Special Events	YEA Events
DiA Events	Other Societies Events

BOSTON CHAPTER OFFICERS

President
Vineet Nair
CRB
c001@ashrae.net

President Elect
Will Fisher
FIA, Inc.
c001pe@ashrae.net

Vice President
Lance Brown
AKF
c001vp@ashrae.net

Secretary
Kiersten Washle
CMTA
c001sec@ashrae.net

Treasurer
Lucas Rowe
Accuspec, Inc.
c001tr@ashrae.net

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William Cunningham BR+A wcunningham@brplusa.com	**Drew Brown** FIA Inc. c001bog8@ashrae.net	**Amy Gebhardt** Emerson Swan c001bog2@ashrae.net
Steven Rosen Jacobs steven.rosen@jacobs.com	**Will Tang** BR+A c001bog11@ashrae.net	**Matt Hallock** Trumbull Campbell c001yea@ashrae.net
Timothy Driscoll Siemens c001memc@ashrae.net	**Kasey Boxleitner** Trane c001bog6@ashrae.net	**Josephine Wendroth** CMTA jwendroth@cmta.com

COMMITTEES

Attendance
Drew Brown
FIA Inc.

Communications, Web, & Publicity
Ben Kleine-Klacht
CMTA
c001web@ashrae.net

Diversity in ASHRAE
Amy Gebhardt
Emerson Swan
c001bog2@ashrae.net

Golf Outing
Matt Hallock
Trumbull Campbell

Benjamin Almond
HTS

Government Affairs
Ben Pignatelli
Energy Solutions
c001gac@ashrae.net

Historian
Eric Edman
BR+A
c001his@ashrae.net

Honors & Awards & Nominating
Bob Persechini
NV5
c001ha@ashrae.net

Newsletter Editor
Jake O'Donnell
FES
jake@fesone.com

Membership Promotion
Timothy Driscoll
Siemens
c001memc@ashrae.net

Josephine Wendroth
CMTA
jwendroth@cmta.com

Refrigeration
Steven Tafone
Suffolk Construction
c001ref@ashrae.net

Research Promotion
Will Fisher
FIA, Inc.
c001cttc@ashrae.net

Special Events
Amy Gebhardt
Emerson Swan
c001bog2@ashrae.net

Student Activities & Scholarship
Steven Rosen
Jacobs
steven.rosen@jacobs.com

Sustainability
Kiersten Washle
CMTA
c001sus@ashrae.net

Technology Transfer
Lance Brown
AKF
c001sec@ashrae.net

Young Engineers in ASHRAE
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c001yea@ashrae.net

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Professional Development
Professional Development Chair Needed!

Positions are open! Please contact Chapter President at c001@ashrae.net if you are interested!