

Special points of interest:

- President's Message
Page 2
- YEA Update
Page 2
- Monthly Meeting
Page 3
- Historical News
Page 4
- Government Affairs
Page 5
- Technology Awards
Program — Page 6
- History Special
Feature — Page 7
- Calendar—Page 9

Register Here!

April Meeting

Tuesday April 11, 2023

Main Meeting Topic:

Cooling Tower Design Considerations,
Operation, & Piping Practices

Tech Session Topic:

Fundamentals of Evaporative Cooling Systems

Presenter:

Anthony Shank

Engineer II

SPX Cooling Technologies, LLC

Where:

DoubleTree Suites by Hilton Boston/Cambridge
400 Soldiers Field Road
Boston, MA 02134

Time:

5:00-5:30 Networking
5:30-6:30 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



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BOSTON CHAPTER OFFICERS 2022-2023



President's Message

Hi Everyone,

As many of you may know, our March meeting was unfortunately delayed due to bad weather, but we were excited that the rescheduled event took place on March 28th with over 80 people in attendance. We appreciated your understanding and flexibility with the date change.

Looking ahead, I would like to invite you to our April meeting, which will take place on April 11th at the Embassy Suites in Waltham, MA. During our tech session, Mr. Anthony Shank from SPX Cooling Technologies, will present on Fundamentals of Evaporative Cooling Systems. This session will provide valuable insight into proper integration of cooling towers in water-cooled condenser systems and teach us basic principles for designing better buildings.

In our main meeting, Mr. Shank will also present on Cooling Tower Design Considerations, Operation, and Piping Practices. Attendees will learn about various types of cooling towers and systems, how to select and size pipe connections and equalizers, and the best practices for saving energy and water consumption. Mr. Shank will also discuss sound considerations and the effects of vibration isolator placement on standard grillage.

As always, we welcome your participation and encourage you to invite colleagues and friends to attend our events. If you are interested in volunteering with ASHRAE Boston Chapter, please do not hesitate to reach out to any of our board members. Thank you for your continued support and we look forward to seeing you at the April meeting!

Vineet Nair
ASHRAE Boston Chapter President 2022-2023



President
Vineet Nair
CRB



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Employers and Employees- are you interested in learning more about the Value of ASHRAE Certification?

Download an "Executive Summary" of 2021 survey results today.

YEA Update



We continue to encourage all YEA members to get out to our monthly chapter meetings, even when we do not have YEA events. The monthly chapter meetings are a good time to meet new people within the industry and keep up on the most modern technology and practices your peers are working with day to day. Our next YEA event will be in June when the sun comes out and we can enjoy the outdoors. In the meantime, please take advantage of the other meetings and events the chapter has to offer to continue your growth in the industry. If there are any questions please reach out to Matt Hallock at mhallock@apav.com

April Meeting

Tech Session: FUNDAMENTALS OF EVAPORATIVE COOLING SYSTEMS

There are applications and misapplications for many systems. During the tech session we will discuss some everyday items and what would you always do for proper integration of the cooling tower in water-cooled condenser systems. There are basics that we can all learn about to help us design better buildings.

Main Presentation: COOLING TOWER DESIGN CONSIDERATIONS, OPERATION, & PIPING PRACTICES

Please join us during the main meeting where we will focus on some of the more typical design considerations for cooling towers.

We will review some of the more basic types of towers and systems and then get into discussions on some of the best practices for piping connections.

Some of the other topics for discussion.

- Learn basic operational principles for successfully saving energy and water consumption.
- Correct practices for selecting and sizing pipe connections and equalizers
- Sound Considerations with Cooling Towers
- Standard grillage and the effects of vibration isolator placement
- Motors and options for fan drive technologies

Presenter: Anthony Shank

Anthony holds a BSME in Mechanical Engineering from University of Arkansas with a minor in Physics. He has worked in the cooling tower industry for many years filling various technical roles including product design, applications engineering, manufacturing, and thermal ratings of cooling towers. In his current role Anthony is a Thermal Ratings Engineer providing technical support for internal and external customers. He handles special projects in the implementation of new performance related technologies around the industry. Mr. Shank deals with thermal and energy optimization through the selection of cooling tower components on a daily basis. He often speaks to engineers, architects, and contractors on solving issues with their cooling tower related systems. Anthony is an active member of ASHRAE and is a founding member of the Kansas City alumni chapter of Tau Beta Pi – The Engineering Honor Society.



Anthony Shank
Engineer II — Thermal Ratings
& Performance Group
SPX Cooling Technologies, LLC

BOSTON ASHRAE GOLF OUTING REGISTRATION

Monday May 15th—1:30 PM

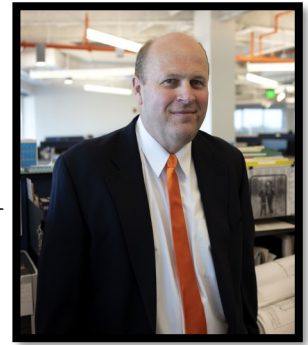
First off, thank you to all of our sponsors for the 2023 year for the ASHRAE Boston Chapter. With these sponsorships, comes some perks of early sign ups, and hole signs, please take a look at your email if you signed your company up for ASHRAE Boston Sponsorship. Gold and Platinum sponsors will get early registration access and all sponsors get a complimentary hole sign. Company logos need to be sent to me (mhallock@apav.com) as soon as possible! For the rest of the membership, please be ready to sign your company up for a foursome on April 3rd. The registration goes live at midnight and registration spots do



not last long. If you would like to volunteer the day of the event (registration period) please reach out to me as well. We appreciate all the help we can get and the day does not go as smooth unless we have volunteers out there helping us. The golf tournament is at Granite Links, in Quincy, on May 15th. Shotgun start is at 1:30pm, dinner and awards follow the round. We look forward to another fun, golf tournament this year! Registration for the tournament can be found [here](#). As stated already, please reach out to Matt at mhallock@apav.com with any questions.

Historical News

By: Eric Edman - BR+A



Eric Edman
Historian

Hello to all of you,

There is nothing to report from the historians desk this month, so we turn all of our attention to another special feature. Hope you enjoy.

Until our May meeting... all our best
Eric
c001his@ashrae.org

Join ASHRAE and The Charles River Conservancy (CRC) for the 24th Annual Charles River Earth Day Cleanup!

When: Saturday, April 22 from 10:00 a.m. - 12:00 p.m.
Where: 20 Nonantum Rd, Brighton, MA 02135

Our group will be working along Nonantum Road in Newton/ Watertown, between Galen Street and Community Rowing. There is free parking where the group can meet at Community Rowing parking lot (at the address above).

Following the clean-up, ASHRAE will host a cookout (weather dependent)! More details to be sent at a later date to those who register, including waivers.

The CRC will supply our ASHRAE crew with trash bags and materials. This is an outdoor event in April. Please dress appropriately. For some further information and pictures of what this is like, you can check out the [CRC link](#).

Parking is available in the lot adjacent to the boathouse. Please park in designated parking areas only. Do not park in the fire lane in front of the boathouse or where signs indicate no parking or tow zone. DO NOT PARK in the long diagonal spaces at the west end of the boathouse; these are reserved for cars and trucks with boat trailers and are for the public access boat launch. Cars without trailers will be towed. Some further information at this [link](#).

For some further information from within ASHRAE

| | | |
|--------------------|--------------|---------------------------|
| Eric Edman | 617-925-8325 | eedman@brplusa.com |
| Allison Guttadauro | 781-264-7849 | aguttadauro@apav.com |
| Amy Gebhardt | 781-807-0664 | agebhardt@emersonswan.com |

| Presidential Award of Excellence | | | | | | | | | |
|----------------------------------|------------------------------------|---------------------------------|----------------------------------|----------------------|----------------------------------|---|----------------------------------|--|------------------|
| 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) |
| <u>1005</u> | <u>1865</u> | <u>790</u> | <u>820</u> | <u>445</u> | <u>1450</u> | <u>1200</u> | <u>400</u> | <u>1145</u> | <u>1375</u> |

Government Affairs

By Ben Pignatelli

Specialized opt-in energy code pushes Massachusetts towards a more sustainable future

The Department of Energy Resources updated its building energy code to include a new Specialized Opt-in Code for buildings as part of the Massachusetts 2050 Decarbonization Roadmap to reach net-zero carbon emissions by 2050. According to the Massachusetts Municipal Association, the specialized energy code has three possible pathways: zero-energy, all-electric or mixed-fuel. The Daily Free Press.

Massachusetts unveils plans to roll back gas in new buildings

Under legislation passed last year, ten Massachusetts towns recently signed-up to promote electrification of space and water heating and ban natural gas in new buildings. E&E News Energywire.

Ben Pignatelli
 Government Affairs
 c001gac@ashrae.net

Battle Rankings

Membership Battle Update - These employers have had the most new members join since July 1st.

Less than 2 months left!

T-FIRST

- MIT Massachusetts Institute of Technology
- WSP

T-SECOND

- CONSIGLI Est. 1905
- AHA CONSULTING ENGINEERS

A gold medal with the number 1 is shown next to the T-FIRST group.



ASHRAE Honors and Awards

Did you know that most ASHRAE members meet the criteria for an award either on the local, regional or society level. Each month I will be highlighting honors and awards that you the member can pursue. Speaking of member, the main criteria for any awards is that you are a full member, so if you have never upgraded from an associate member to full member that is the first step that will be needed to be done. It is a form you can get online to upgrade your membership, there is no financial impact and will entitle you to other full membership perks.

Take a look at the presentation for an overview of what is available for honors and awards . **Click the slide below!**

Any Questions please reach out to me.
 Bob Persechini
 bob.persechini@nv5.com



HAVE YOU CONSIDERED PROMOTING ONE OF YOUR SUCCESSFUL PROJECTS FOR AN ASHRAE AWARD?

The 2023 Technology Awards Program

The ASHRAE Technology Awards program recognizes, on an international scale, successful applications of innovative design, which incorporate ASHRAE standards for effective energy management, indoor air quality, and good mechanical design.

All current members of ASHRAE may submit entries.

ASHRAE Technology Award winners are recognized by peers as being innovative and capable of achieving a high level of competence. Winning projects are highlighted in articles in the ASHRAE Journal. The Society provides press releases to industry publications and ASHRAE Insights.

Recipients are honored at the Plenary Session of the Society's Winter Meeting, where the first-place awards as well as the "Engineering Award of Excellence" are presented. One award plaque will be presented to an entrant representing the design team, and another plaque will be presented to the building owner. The winning design firm may purchase additional plaques.

With any questions, please email Lance Brown. C001cttc@ashrae.net

All current members of ASHRAE may submit entries. **Please submit ([Short Form](#)) by May 1st**

Welcome New ASHRAE® Boston Members

We welcome those that joined our chapter this past month!

- Emma Ruginski
- John MacLachlan
- Ruben Avagyan
- Nicholas Tereshko
- Willie Dawkins-Wong
- Brian Sullivan
- Matthew Horton
- Matthew Brunner
- Elena Arca
- Jeff Kimmel
- Guidwo Sinord
- Morgan Strong
- Shawn Cousineau
- Christopher DeFilippo
- Joseph Stefanini
- Michael Munzer
- David Gottdiener Islas
- Lindsay Dallman
- Adam Costa

History Special Feature by Eric Edman

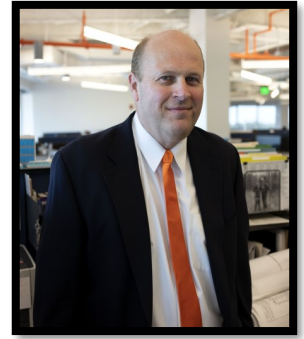
What the heck is a Btu?

Happy Spring to all of you.

I sure did enjoy the winter off. I will say not shoveling any snow was certainly a treat. Don't worry, just like the Patriots, there is always next year.

In one of my curious moments, probably driving on the Mass Pike, I wondered why it's a British thermal unit and not a German thermal unit? A Gtu instead of a Btu? Most of us know the difference between Fahrenheit and Celsius, but can't read a thermometer when its scale reads from zero to one hundred.

Most of us know the Brits were the first to come up with everything that has to do with hydronic heating. They will tell you that too. William Cook came up with the idea of heating buildings with pipes filled with steam. Yet his most famous invention was the electric telegraph, of course. James Watt was among the first to put a radiator in his own proper English house in the year 1785. Watt you may recall did not invent the steam engine but helped improve it. It led to a fundamental shift in the Industrial Revolution worldwide. Got to love those Brits. They remain, even after all our fighting, our staunchest ally indeed. Kind of like brothers I suppose. I love them.



Eric Edman
Historian



The Royal Liver Assurance Building

In 1911, The iconic Royal Liver Building, the world's first reinforced concrete building rose on the banks of the Mersey River in Liverpool, England. It had 119,000 square feet of radiant walls. The world's first and certainly largest hydronic radiant project.

Now, back to that elusive British thermal unit....dang Btu. We have another Brit to be thankful for this Btu thing. It originated in Thomas Tredgold's book on Warming and Ventilating of Public Buildings. The First Edition of this book dates to 1824. This was probably the first written specifically about warming and ventilating public buildings. In it, on page 24 are these words from that long-gone Englishman, Mr. Tredgold, "in order to compare the effects of different kinds of fuel, some convenient measure of effect should be adopted: not only for the purpose of lessening the trouble of calculation, but also to render it clear and intelligible. I shall, therefore, without regarding the measures of effect employed by others, adopt one of my own, which I have found useful in this and other inquiries of a similar nature. I take as the measure of the effect of a fuel, the quantity, in pounds avoirdupois, which will raise the temperature of a cubic foot of water one degree

of *Fahrenheit's scale." What we have there is the British thermal unit, a BTU.

So..Why not a Gtu? It's British (not German) because it came from the mind of Thomas Tredgold, a British railroad engineer who dabbled in heating and ventilating public buildings in his spare time. You read correctly ladies and gentlemen, in his spare time. That might raise the question what do you do in your spare time? Story for a future article perhaps.

What is interesting about that definition, though, is the business about a cubic foot of water rising in temperature by one degree *Fahrenheit. These days, as you probably know, a Btu is the amount of heat needed to raise one pound of water one degree on the *Fahrenheit scale, not one cubic foot! If you were not paying attention, this is a pretty big change. After all, one cubic foot of water is 62.4 pounds.

Mr. Tredgold goes on in his book to give examples of how much fuel it would take to bring a cubic foot of water to a boil from several different temperatures. He explains latent heat and how we have to add a lot of energy to get water excited enough to change from liquid at 212°F to steam at that same temperature. We keep focus about that change from one cubic foot to one pound of water, though. It figures it got changed for one reason, and one reason only. Mr. Tredgold assumed room temperature on the *Fahrenheit scale. And once he passed away, others set the rules. We also have to agree that a pound of water is easier to work with than a cubic foot of water, right? And a pound is also a British measurement. And that's how the British thermal unit came to be.

Today, even the British don't use the British thermal unit. We Americans are the only ones hanging on to that made-up unit of measurement. Will we ever change?

In a future article we may write about the sandwich. At a recent lunch seminar, where most of the attendees were engineers, we were allowed an extra 15 minutes for the lunch break. They did this because engineers don't make a sandwich; they build a sandwich. The meat and the cheese and the bread must all be in perfect alignment. The mustard (or approved equal) has to reach to within two millimeters (or a half an inch??) of the crust. There's a plan and spec for all of this, hence (another British term) the extra time allotted at the seminar lunch. We can discuss conversion from Imperial units to SI another day.

*Despite popular rumor, Fahrenheit was not a member of Boston ASHRAE. According to our best records he never was a member of ASHRAE. Why we use his scale can possibly be yet another article. Another special feature to make your day complete. Now get out there and tell the world what you learned from today. All the best from your historical team - Eric

Warming & Ventilating of Public Buildings

WARMING AND VENTILATING PUBLIC BUILDINGS,

DWELLING-HOUSES, MANUFACTORIES, HOSPITALS, HOT-HOUSES, CONSERVATORIES, &c.;

AND OF CONSTRUCTING FIRE-PLACES, BOILERS, STEAM APPARATUS, GRATES, AND DRYING ROOMS;

WITH ILLUSTRATIONS EXPERIMENTAL, SCIENTIFIC, AND PRACTICAL. TO WHICH ARE ADDED, REMARKS ON THE NATURE OF HEAT AND LIGHT;

AND VARIOUS TABLES USEFUL IN THE APPLICATION OF HEAT.

SECOND EDITION, IMPROVED, WITH NINE PLATES AND SEVERAL WOOD CUTS.

By THOMAS TREDGOLD, CIVIL ENGINEER; MEMBER OF THE INSTITUTION OF CIVIL ENGINEERS; AUTHOR OF "ELEMENTARY PRINCIPLES OF CARPENTRY;" AN "ESSAY ON CAST IRON," &c. &c.

"We bring some new material, and what's old New cut with care, and in no borrow'd mould."—Young.

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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. 23, 2023 | YEA/DiA Joint Social | Flight Club Seaport | Details here. |
| Mar. 28, 2023 | March Meeting | Embassy Suites Waltham | Topic: GEOTHERMAL SYSTEMS Presenter: Andrew Kozak, P.E. |
| Apr. 2023 | YEA Event | TBD | Details to follow. |
| Apr. 11, 2023 | April Meeting | Doubletree Boston / Cambridge | Topic: COOLING TOWERS Presenter: Anthony Shank |
| Apr. 2023 | DiA Event | TBD | Details to follow. |
| May 9, 2023 | May Meeting | Embassy Suites Waltham | Topic: ENERGY MODELING Presenter: Drew Crawley |
| May 15, 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!

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

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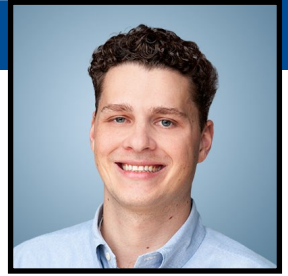
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Professional Development
Professional Development Chair Needed!

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