

May 2017
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COSTS

Fees are based on online reservations and prepayment.

Philadelphia Chapter Members:
\$30

ASHRAE Society Members -
Non-Chapter Members:
\$40

ASHRAE Life Members:
No Charge

Non- ASHRAE Member:
\$40

YEA Member (35 & under):
\$25

Students:
\$10



QUAKER CITY CLIMATE

Thursday, May 18, 2017

Tom Watson, PE
Fellow ASHRAE
Daikin Applied

4:00 PM to 5:00 PM Technical Seminar

"Refrigerants and Their Application"

5:00 PM to 6:00 PM Social Hour/Cash Bar

6:00 PM to 7:00 PM Dinner

7:00 PM to 8:00 PM Presentation

"Chiller Plant Pumping Systems"

(See [page 3](#) for more information.)

This is Past Presidents' Night.

Please note that this event is free for Past Philadelphia Chapter Presidents.
Past Presidents should email hope@mmco1.com to register
if they have not done so already.

[Click here](#) to Register

Registration includes both the seminar and dinner meeting.

LOCATION

The Wyndham
400 Arch Street
Philadelphia, PA 19106

www.phillydowntownhotel.com

For directions, [click here](#).

2016-2017

[President](#)

Casey Younkins, PE

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[Vice President](#)

Mike Radio, PE, CEM, BEMP, LEED AP

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[Sean Hughes, PE](#)

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Eric Feinschil

PRESIDENT'S MESSAGE

As we start to wind down our 2016-17 ASHRAE year, I wanted to say thanks again to all our individual and corporate sponsors, our volunteers that assist with our board and committees, and of course to all our members that have made it out to a meeting or two this year. Without all your continued support, we would not have the success we currently have, and as we look ahead to planning for 2017-18, we're striving to put together another package of programs that will hopefully increase interest to a new level.

Our April meeting was on Thursday, April 6th, and featured a presentation by Rachel McCarthy from CHOP, presenting on her experience with Optisine and lessons learned, and all the energy upgrade projects and results from their work over the years. Rachel shared with us many of the various upgrades they made at CHOP, some with good results, some with mixed results, and it was interesting to hear about real-life experiences with some of these technologies out there, as on paper, they all sound great before implemented.

In May, we have a full slate of events the week of May 15th – this one week will feature our annual golf outing, our YEA social at the Philadelphia Union, and our final dinner meeting of the year. We hope you're able to attend as many events as possible with us! Our dinner meeting will feature Tom Watson, past ASHRAE president and Distinguished Lecturer, presenting on chilled water system design and optimization. We are thrilled Tom can join us for another presentation to the Philadelphia Chapter. It is also Past Presidents' Night, and we hope to see as many of our past chapter presidents as possible join us, and it is where we'll formally vote on, and announce, the Board of Governors for 2017-18.

Lastly, we're still building up our committee chairs for the 2017-18 ASHRAE year. We strive to add a few new volunteers to committees each year. If you are interested, please contact me. We'd be happy to host you at an upcoming board meeting so you can learn what the various roles are.

Thanks as always for your continued support of ASHRAE. I look forward to seeing you all at our meeting this month.

Casey Younkins, PE

Philadelphia Chapter President

c021@ashrae.net

2017-2018 ASHRAE Philadelphia Chapter

Board of Governors Slate

President	Jeff Crozier
President Elect	Michael Radio
Vice President	Michael Calabrese
Treasurer	Timothy Reinking
Secretary	Eric Feinschil
Board of Governor	Sean Hughes
Board of Governor	Daniel Brown
Board of Governor	Michael Magee
Senior Board of Governor	Casey Younkins

May Meeting Information
Thursday May 18, 2017

Technical Seminar Summary
Refrigerants and Their Application

Conversations about sustainable buildings typically focus on the need for water and energy efficiency and green building materials. Equally important in the move toward sustainability is the need to reduce the impact of refrigerants on the environment.

This presentation provides a brief history of refrigerants, their basic chemistry and their properties. The emphasis on what determines the types of applications are most suitable, including compression technology, heat exchanger design and service procedures. Alternative refrigerants with a focus on potential refrigerants for the future are discussed, noting that safety concerns and environmental issues need to be balanced. Refrigeration system efficiency is also discussed in the context of the environmental issues.

Meeting Presentation Summary
Chiller Plant Pumping Systems

This presentation explains the fundamental heat transfer, thermodynamic, and fluid flow principles that govern chiller plants and their components. The focus is how these principles can be utilized to reduce the energy use and how the operation and maintenance is affected by hydronic system choices. The “Low Delta T” syndrome and how different piping system designs may or may not mitigate it is another major topic.

Speaker Bio
Thomas E. Watson, P.E.
Fellow ASHRAE

Tom Watson currently is an engineering consultant to Daikin Applied. Before this, Tom spent 17 years as Chief Engineer, involved in Global New Product Development supporting facilities in China, Japan, Italy and North America for Daikin Applied.

Tom has held various leadership positions in ASHRAE, including president from 2012-2013, and recently chair of the committee writing ASHRAE’s Standard 188, Prevention of Legionellosis Associated with Building Water Systems.

As a licensed professional engineer in the commonwealth of Virginia, Tom holds five patents related to refrigerant, gas and chiller compressors. He has received numerous awards throughout his career, including the ASHRAE Standards Achievement Award in 2004, ASHRAE Exceptional Service Award in 2010, and the F. Paul Anderson Award in 2016 which is ASHRAE’s highest technical award. In 2017 he was awarded the Institute of Refrigeration’s J & E Hall Gold Medal for ground breaking work on improving the efficiency of chillers and industrial heat pumps.





19th Biennial

Plumbing Trade Exhibition & Technical Symposium

Open To All Professional Trades

Mechanical/Plumbing Contractors, Engineers, Designers,
Maintenance Engineers & Facilities Managers

Thursday - October 26th 2017 12pm to 7pm

ASPE Symposium 4-one hour topics CEU/PDH certified

ASHRAE Symposium 4-one hour Topics CEU/PDH Certified

The Clarion Hotel & Conference Center

Formerly The Ramada Inn

76 Industrial Highway, Essington, PA 19029

Serving The Delaware Valley & Surrounding States

ACECNJ Members and Friends,

We're dismayed to hear recent comments by Lieutenant Governor Kim Guadagno calling all New Jersey engineers "political hacks".



These disturbing comments were made during an interview with Michael Aron on NJTV's *On the Record* which aired on April 30. The interview is available on-line, [here](#), around the 18-minute mark.

We're not quite sure what the basis is for these offensive remarks, especially from someone who has spent seven years proclaiming her commitment to bringing and keeping jobs and businesses in New Jersey.

Needless to say, ACECNJ is profoundly disappointed that our own Lieutenant Governor would disparage an entire industry of dedicated professionals who design the roads, bridges, transit systems, water & waste water systems, school buildings, office parks (we could go on...) that make New Jersey's economic engine run and make our State the great place it is.

The Lieutenant Governor in the same interview called for all design and engineering services being performed by consultants for public agencies to be performed by in-house staff. A misguided proposal like this - beyond being completely infeasible - would skyrocket costs and cripple agencies like New Jersey Department of Transportation whose mission it is to keep our transportation infrastructure in a state of good repair.

ACECNJ has asked the LG to explain her statements and has requested a public apology. We also look forward to educating her on the importance of our profession to the health, safety and well-being of 9 million New Jerseyans, as well as the misguided notion that in-house design & engineering services serves our State well.

ACECNJ is - and remains - the voice of New Jersey's engineering profession.

Siemens Annual Engineering Seminar - Creating Perfect Places Through Digitalization

Friday, May 19, 2017

7:30 AM to 2:30 PM

SugarHouse Casino
Event Center 2nd Floor
1001 North Delaware Avenue
Philadelphia, PA 19125



Please join Siemens Building Technologies for an educational experience, where you will gain insight on how data, analytics and integration of systems in respect to how Building Automation, Fire, and Security Systems play a major role in driving optimal performance in buildings. Don't miss this opportunity to network with Siemens leadership and product experts, as well as industry colleagues and experience Interactive Demonstrations.

[Click here](#) to register!

YEA Soccer Night
Sponsored by Delren

May 17, 2017
5:00 PM to 10:00 PM



Talen Energy Stadium
(formerly PPL Park)
One Stadium Drive
Chester, PA 19013

www.philadelphiaunion.com

Philadelphia Chapter ASHRAE invites all members 35 and under to a night of fun with the Philadelphia Union as they play the Houston Dynamo. Tickets are limited and are \$15 for YEA members, student members, and guests.

Join us at 5:00 PM to socialize and tailgate before the game and get your tickets.
Exact meeting location is TBD. The game begins at 7:00 PM.
Contact Dan Brown at c021yea@ashrae.net with questions.

Tickets are limited! Sign up today!

YEA Scholarship

We are asking that working professionals nominate young engineers at your firms for a YEA scholarship. These individuals should have shown outstanding performance in the HVAC&R industry and show an active involvement and interest in ASHRAE. We will be providing criteria to judge the nominees, and a winner will be selected to receive an award. Nominations should be sent to Dan Brown at c021yea@ashrae.net. More details to come.

Did you know there are free design guides available on the ASHRAE web site?
The regular technical article is not the only place to get great free information each month.
Take a few minutes to log on and see the variety of design guides available to download at no cost.
The design guides can be located by using the link below.

<https://www.ashrae.org/standards-research--technology/advanced-energy-design-guides>

PHILADELPHIA CHAPTER PROGRAMS CALENDAR 2016-2017

Date	Location	Topic	Theme
5/17/17	Talen Energy Stadium	Union Soccer Game - Sponsored by Delren	YEA Outing
5/18/2017	The Wyndham	4:00 PM - 5:00 PM - Technical Seminar "Refrigerants and Their Application" 5:00 PM - 8:00 PM - Meeting/Presentation "Chiller Plant Pumping Systems" By Tom Watson, ASHRAE Fellow, Daikin	Past Presidents' Night

Program calendar is tentative and subject to change. Please refer to [ASHRAE Philadelphia Website](#) for up to date information.

Advance registration and pre-payment are required before the meetings.

We need your attendance!

If we are below our guaranteed level for attendees at our meetings, our treasury could be negatively effected. Our programs are designed around the membership's input and we all need to support these meetings to maintain a strong/informed association. We hope to see you at our next meeting. Please come out and support our Chapter!

Advertise Now in the 2017-2018 Directory!

Are you interested in advertising in the 2017-2018 Philadelphia Area Directory of Associations, Consulting Firms, and Manufacturers' Representatives?

This directory is published annually by the Philadelphia Chapter of ASHRAE.

Current directory circulation exceeds 1,400 copies and is growing.
Users include engineers, contractors, purchasing agents, suppliers
and over 900 ASHRAE members.

Now is the time to have your firm receive the exposure that only the ASHRAE Directory can offer!

Email hope@mmco1.com if you would like more information.

Please submit articles highlighting novel HVAC technologies to Chapter Technology Transfer Committee Chair Eric Feinschil (c021cttc@ashrae.net) for consideration in future newsletters.

Cold Weather Operation of Cooling Towers

By Paul Lindahl, Member ASHRAE

The purpose of this article is to address primarily the cold weather operation of open circuit cooling towers associated with water-cooled chiller systems, including those with water side economizers. While similar in many ways with regard to freeze protection of the recirculating water in contact with cooling air outside the process coils, closed-circuit cooling towers and evaporative condensers have special requirements that are not covered in this article.

As mentioned in “Saving Energy With Cooling Towers” by Frank Morrison in the February issue, water-cooled systems offer the lowest energy option for most cooling duties. Many buildings require cooling year-round and use either airside or waterside economizers to further reduce energy. Indeed, ASHRAE Standard 90.1-2013 expanded the use of economization in more climate zones. For those buildings that use water economizers, the cooling towers must operate year-round as would more process-oriented buildings, such as data centers. In colder climates, many designers and operators are concerned with operating cooling towers in subfreezing temperatures.

By following some simple operating guidelines, cooling towers can, and have been, successfully operated in even in very cold climates, as shown in Figure 1, at -15°C (5°F) in Montreal. More than 24 hours without wet-bulb temperatures going above 32°F (0°C) can be considered “sustained freezing conditions,” as no daily freeze-thaw cycle will exist. Wind speeds and other factors should also be considered. In general, when the weather report has a wind chill factor forecasted below 32°F (0°C) for more than a day, operators should be thinking about freezing operation strategy. Preferably the strategy is built into the design, automated and in use all of the time.

In comparison to comfort cooling, data centers may operate year-round with a high load factor, resulting in the cooling tower sizing being driven by the economizer duty in cold weather. This can result in the cooling tower being oversized for the summer duty. Cooling towers operating in economizer mode must produce water temperatures that are at least equal to, or lower than, the chilled water temperatures that would otherwise be produced during conventional chiller operation. However, when such data centers are lightly loaded, which is typical in the early years of operation, a potential impact exists due to the larger cooling tower sizing under freezing conditions.

Cold Weather Operation of Cooling Towers

Cooling towers have been operated successfully in some of the most severe freezing conditions around the world. The colder the weather, the more that certain relatively simple protocols must be followed and precautions taken to avoid operational issues under such conditions. Fully loaded data centers are actually ideal candidates for water-side economization in freezing climates because of high year-round heat load.

Maintaining Heat Load

Without a heat load, water flowing over a cooling tower will end up either at the air wet bulb temperature, or as ice, whichever occurs first, as shown in Figure 1. This will happen quickly with fans running—more slowly if they’re off. Note that wet-bulb temperature drives evaporative heat transfer, and is an equal or lower temperature than the dry bulb. For example, at 35°F (1.6°C) dry bulb, above commonly assumed freezing conditions, the wet-bulb temperature often can be less than 32°F (0°C) wet bulb—and the water flowing over a cooling tower can freeze without proper operation.

Maintaining Vigilance

No matter how automated your cooling tower operation, visit the cooling tower regularly in sustained freezing conditions. Perhaps once a shift is enough—perhaps not—only experience will determine what is best for a specific site. Remote

[\(click here to read the entire article\)](#)



The Philadelphia Chapter
of the
American Society of Heating,
Refrigerating and Air
Conditioning Engineers, Inc.

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F 610-971-4859

Visit
our web site at:

www.ashraephilly.org

Republication of material
contained herein is expressly
forbidden without official Chapter
authorization. The Chapter does
not speak or act for the Society.
Any member with material to
submit for inclusion in the
Climate can send the information
to:

Hope Silverman
P 610-971-2169
hope@mmco1.com

Material can include letters to the
editor, member news, upcoming
events, comments on chapter
programs or issues, etc.

NEW PHILADELPHIA CHAPTER MEMBERS

New Member:

Scott Marc Davis

New Associates:

Joseph Henry Breder

Devon V. Lam

Dennis Munehiro Osawa

Michael A. Ferguson

New Affiliates

Anthony E. DiLeonardo

Jessica Harrington

Michael Loftus

Membership Advancement

If you are currently an ASHRAE Associate Member, becoming a full Member is easier than you think! The following count toward the required **12 points** to advance to full membership status. You must update your ASHRAE online biography and send an email to membership@ashrae.org to advance.

Non-accredited degree = 4 points

Accredited degree = 6 points

PE = 4 points

Industry experience = 1 point/year

The 2016-2017 Directory is Still Available!

The 2016-2017 edition of the Directory of Associations, Consulting Firms,
and Manufacturers' Representatives
in the Philadelphia Area is now available. It sells for \$23 each.

Send your check to Hope Silverman, ASHRAE, 994 Old Eagle School Road,
Suite 1019, Wayne, PA 19087.

If you prefer to pay by credit card, please call Hope at 610-971-2169 or email her at
hope@mmco1.com.