ASHRAE Philadelphia Chapter

April 2018
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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, April 12, 2018

## Impacts of Climate Change and Urbanization On Future Building Performance

*presented by*

**Dr. Dru Crawley**

| | |
|---|---|
| 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 |

**Click here to Register**

This is Student Night and Membership Promotion Night!

**LOCATION**

**Wyndham Philadelphia Historic District**
400 Arch Street
Philadelphia PA 19106
215-923-8660
www.phillydowntownhotel.com

For Directions: click here

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**Mark your calendar!**
**Philadelphia Chapter ASHRAE**
**Annual Golf Outing**

Monday, May 14, 2018
See Page 6 for more details.

**2017-2018**

**President**
Jeff Crozier, PE, CEM, LEED AP

**President-Elect**
Mike Radio, PE, CEM, BEMP, LEED AP

**Vice President**
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Tim Reinking

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**Senior Governor**
Casey Younkins, PE

**Governors**
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Sean Hughes, PE
Mike Magee

**Newsletter & Website Editor**
James Piscopo, PE, LEED AP

**Chapter Technology Transfer Committee Chair**
Judd Vail

**Research Promotion Chair**
Gary Debes

**Basic School Coordinator**
James Lill, PE

**Refrigeration**
Chris Moore

**Membership Promotion Chair**
Kevin Clare

**Student Activities Chair**
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**Program Committee Chair**
Mike Radio

**Chapter Historian**
Sean Hughes

**Young Engineers in ASHRAE**
Dan Brown

**Public Relations**
Casey Younkins

**Grassroot Government Activities**
Edward Decker

**Golf Outing Director**
Tim Reinking

**Honors and Awards Committee**
Eric Feinschil

## President's Message

After the last few snow storms, it is nice to welcome in Spring. It will be nice to have warmer weather and no more snow.

Similar to previous years, we held the Product Showcase at Fisher's Tudor House in March. Unfortunately, the attendance was down significantly from the past. We would welcome any feedback the HVAC community has on how to improve the event, or whether we should offer the event. We truly appreciate the support of the vendors that participated and would also like to hear from you so we can make this program beneficial for vendors, contractors and engineers.

On a more positive note, we offered a two-day ASHRAE Standard 90.1 seminar at Penn State's facility in the Navy Yard. The seminar was led by industry experts that contributed to the standard. Both days were well attended and we have received positive feedback. While the seminar was intended to talk about the 2007 version, the lecturers offered insight into what changed in more recent versions. The seminar was attended by people that traveled from as far away as Baltimore, MD and Rochester, NY. Thank you to Judd Vail, Mike Witkowski, and Larry Spielvogel for all their hard work putting this together. I expect the Philadelphia Chapter will offer similar seminars in the future.

We look forward to seeing you at our next meeting on April 12, 2018 at the Wyndham Hotel. Our speaker will be Dr. Dru Crawley and the presentation will be on the "Impacts of Climate Change and Urbanization on Future Building Performance". We also have our annual golf outing at DuPont County Club coming up on May 14 and our last meeting of the year on May 17 at the AIA Center of Architecture and Design. Additional information is attached and is available on our website.

**Jeff Crozier, PE, CEM, LEED AP**
Philadelphia Chapter President
c021@ashrae.net

## 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

## April 12, 2018 Meeting

### Impacts of Climate Change and Urbanization on Future Building Performance

*presented by*

### Dr. Dru Crawley

**Program Description:**
With the increasing interest in climate change driven by human activity, recent research has focused on the impact of climate change or urban heat island on building operation and performance across the world. But this work usually aggregates the energy and peak demand impacts across a broad sector. In a recent study, impacts on the operating performance of an office building were estimated based on climate change and heat island scenarios in 25 locations (20 climate regions). This presentation presents the variation and differences among the 20 regions when climate change is introduced. The focus is on changes in comfort conditions, building equipment operation as well as daily patterns of energy performance using prototypical buildings that represent typical, good, and low-energy practices around the world. Other issues such as fuel swapping as heating and cooling ratios change, impacts on environmental emissions, and how low-energy building design incorporating renewables can significantly mitigate any potential climate variation are also presented.

**Speaker Bio:**
Dru Crawley is Bentley Fellow and Director, Building Performance focusing on building performance, BIM, net-zero-energy buildings, and sustainability. Before being elevated to Bentley Fellow in 2014, he led development of Bentley's suite of building performance software for four years. Prior to joining Bentley in 2010, Dr. Crawley developed and managed EnergyPlus and the USDOE's Commercial Buildings Initiative (now Better Buildings Initiative and Alliances) promoting creation of net-zero-energy buildings.

With more than 35 years of experience in buildings energy efficiency, renewable energy, and sustainability, he has worked in engineering software development, government research and standards development organizations, as well as building design and consulting companies. He received his PhD in Mechanical Engineering from University of Strathclyde in Glasgow, Scotland on the topic of building simulation as a policy tool, a Bachelor of Architecture from University of Tennessee and is a registered architect.

Dr. Crawley is active in ASHRAE (Chair of Standard 169 Climatic Data for Building Design Standards, member of Standards Committee, member of SSPC 189.1 (Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings), member of SSPC 140 (Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs), former member of the Technical Activities, Research Administration, Advocacy, and Grassroots Government Activities Committees, and past chair of Technical Committees 2.8, 4.2, 4.7, and 7.1). He was made an ASHRAE Fellow in 2009 and achieved ASHRAE BEMP (Building Energy Modeling Professional) certification in October 2012. He has received several ASHRAE awards: Exceptional Service Award (2013), Service to ASHRAE Research Award (2012), Distinguished Service Award (2003), and Symposium Best Paper Award (1999) for "Which Weather Data Should You Use for Energy Simulations of Commercial Buildings?"

He is also active in the International Building Performance Simulation Association (IBPSA at-large board member since 1998, Fellow in 2012, Regional Affiliate Liaison since 2006), IBPSA-USA (board member since 2013, vice president since 2017, treasurer 2013-2017), U. S. Green Building Council (USGBC, vice chair of the Energy & Atmosphere Technical Advisory Group, past member, Research Committee, past research Liaison), the American Institute of Architects (AIA), an Affiliate member of CIBSE, and serves on the editorial boards of three international Journals. He has written more than 125 papers and articles, testified before the U.S. Congress, lectured at more than 25 universities, and made more than 400 presentations on building energy efficiency, sustainability, and renewable energy throughout the world. As an ASHRAE Distinguished Lecturer, he has given more than 100 presentations and workshops to more than 60 ASHRAE chapters throughout the world.

## PHILADELPHIA CHAPTER PROGRAMS CALENDAR 2017-2018

| Date | Location | Topic | Theme |
|---|---|---|---|
| 4/12/2018 | Wyndham Hotel | Impacts of Climate Change and Urbanization on Future Building Performance<br>By Dr. Dru Crawley | Student Night and<br><br>Membership |
| 5/14/2018 | DuPont Country Club | Annual Golf Outing | |
| 5/17/2018 | Center for Architecture & Design | AIA - Passive House Institution | Past President's 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!

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### The 2017-2018 Directory is Still Available!

The latest 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.

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### Save the Date!

**YEA Social**
**Philadelphia Union Game**

Talen Energy Stadium
End of May

**Online registration and full details to follow.**

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

# Impact of Failed Steam Traps on Process Plants

## 1.1 Introduction

This paper is meant to give a background into the purpose of steam traps, failure modes and consequences and current methods to detect failure. While we give a broad overview of legacy and new methods of implementing a steam trap health monitoring system, the desired outcome would be for Rosemount, Inc. to work with you in a collaborative relationship to find the solutions that best fit your needs.

## 1.2 Background

### 1.2.1 Purpose of steam traps

Steam leaves the boiler of a steam system with near 100% quality (fraction of a saturated mixture that is steam). As steam is distributed throughout the plant, heat is lost and some of this steam condenses and collects in low points. Condensate in steam piping has several consequences, which will be discussed further in the failed shut steam traps section.

The bottom line is that steam traps protect you from these adverse conditions:

- Safety concern for plant personnel and equipment
- Negative impact on plant throughput and quality
- Increased maintenance costs
- Increased fuel consumption leading to high fuel costs
- Reduces ability to meet environmental standards and goals

### 1.2.2 Failed shut steam traps

#### Water hammer

Water hammer is a condition where slugs of liquid become trapped between steam packets and then accelerate to a high velocity. When accelerated, the slugs of water can create a “hammer” like effect causing extreme damage to plant equipment.

#### Thermodynamic efficiency

Water that is not removed from the steam system will collect in the low points of the system and in plant equipment. One common place is in heat exchangers. This buildup will cover heat exchanger tubes causing heat transfer to be compromised. Less heat transfer will cause your process to slow down and have undesirable consequences on both product quality and throughput.

In one example, a tire manufacturer was unable to control temperature of their manufacturing process because of steam trap failure. When the process control temperature was out of tolerance entire batches had to be reprocessed costing millions of dollars.

#### Water impingement of plant equipment

If steam traps do not remove water from your steams system then droplets will be entrained in the steam. This entrained water can cause wear and tear on internal components of plant equipment, causing expensive repairs and possible placing plant personnel at risk.

- Leaks in heat exchanger tubes
- Turbines throwing blades
- Wall thinning on the outside edge of pipe bends

(click here to read the entire article)



**Philadelphia Chapter ASHRAE**
**Annual Golf Outing**

Monday, May 14, 2018
11:00 AM to 7:00 PM

DuPont Country Club
1001 Rockland Road
Wilmington, DE 19803

Click here for directions.

Click here to register!

Schedule:
11:00 am - Registration Begins
11:30 am - Boxed lunches available
12:30 pm - Shotgun start
5:30 pm - Dinner and prizes

$200.00 Golf Outing 2018 - Golf and Dinner (one golfer)
$200.00 Golf Outing 2018 - Single Hole Sponsor (does not include golf or dinner)
$350.00 Golf Outing 2015 - Two Hole Sponsor (does not include golf or dinner)
$450.00 Golf Outing 2018 - Three Hole Sponsor (does not include golf or dinner)
$50.00 Golf Outing 2018 - Dinner Only

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## Advertise Now in the 2018-2019 Directory!

Are you interested in advertising in the 2018-2019
Philadelphia Area Directory of Associations, Consulting Firms, and Manufacturers' Representatives?

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

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

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.

## Forum on Architecture + Design
## October 3-5, 2018

## Hosted by AIA Philadelphia

https://www.aiaphiladelphiaorg/forum-architecture-design

### What is Forum on Architecture + Design?

The Forum on Architecture + Design is the newly rebranded educational and expo event that is replacing the previous Design on the Delaware conference. The Forum is focused on curating multidisciplinary educational content for designers, civic leaders, product manufacturers, technology providers, and real estate developers - all the industries that contribute to shaping our built environment.

### The Forum will offer:

- over 30 accredited continuing education programs and tours,
- compelling keynote sessions featuring nationally/internationally recognized industry leaders,
- a three-day expo, and
- several opportunities to network and socialize with leaders in the building and design professions.

### Now accepting program submissions!

To review program requirements and submit a program for the 2018 Forum on Architecture + Design, please click here.

### Sponsorships are available!

Click here to download the 2018 Forum on Architecture + Design Sponsorship and Exhibit Opportunities Packet.

If you have any questions, please feel free to reach out to Member Services & Events Manager, Julianne Foley, at ju-li@aiaphila.org.

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

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**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 Members:**

Dr Young Cho

Frank A Robison

**New Associates:**

Colin McClernon

**New Affiliates:**

Mark Carbonaro

Prodromos Topalidis

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**SMCA of Philadelphia and Vicinity**
is proud to announce
**SMACNA's Technical University**
at the SMCA offices
955 Louis Drive
Warminster, PA 18974
April 12, 2018 (8 a.m.—4 p.m.)
April 13, 2018 (8 a.m.—12 p.m.)



The course curriculum covers the use and application of SMACNA's "HVAC Duct Construction Manual," "Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems," "HVAC Air Duct Leakage Test Manual," and both the Round and Rectangular Industrial Duct Construction Standards manuals.

Project managers, estimators, engineers, supervisors, foremen, and shop superintendents from SMACNA member companies have participated in these intensive, hands-on educational sessions.

The 1½-day program led by SMACNA's Technical Resources staff covered HVAC and industrial applications including duct construction, duct leakage testing, and fire dampers.

Visit www.smca.org to register

Space limited to the first 32 to register.