ASHRAE Philadelphia Chapter

April 2020
Volume 55, Issue 8

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QUAKER CITY CLIMATE

Tuesday, April 28, 2020
12:00 PM to 2:00 PM

Drury B. Crawley, PhD
Director, Building Industry Development, Bentley Fellow
Bentley Systems, Inc.

presents

"Getting from AEDGs to Zero-Energy Buildings "

Hosted by AIA
Center for Architecture
1218 Arch Street
Philadelphia, PA 19107
https://www.philadelphiacfa.org/

AIA Philadelphia

Rescheduled to Include
Live Instruction and Remote GoToMeeting

ASHRAE 90.1 Technical Seminar
September 16 & 17, 2020
16 PDHs

See page 3 for more information.

This is a comprehensive, in-depth and unique two-day program covering ANSI/ASHRAE/IES Standard 90.1 (2016) Energy Standard for Buildings (except Low-Rise Residential Buildings).

A program of this magnitude and depth is not available anywhere else and at this low a cost.

Sponsored by: Burns Engineering

2019-2020

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Special Events
Tim Reinking

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Mike Radio, PE

Attendance
Nathan Ware

Reception
Robin Martin

Diversity in ASHRAE
Ashley Lester

President's Message

Greetings Chapter Members,

Unfortunately, our CHAOS session and 90.1 Seminar have been rescheduled due to speaker availability. Our Society's highest priority is the safety and welfare of our volunteers and staff. Our Chapter leaders met to consider whether in-person meetings are appropriate based on the local circumstances and a local risk assessment. We regret to inform you that due to government restrictions, Society recommendations and health concerns, we will not be meeting in person. We will be moving to an online-based professional meeting format, providing PDH's. Our April session with the AIA will now be online.

At this time, Society is currently planning to move forward with the Annual Meeting in Austin. Registration is open. Please monitor our Chapter website for the latest information as the pandemic circumstances change. Thank you for your understanding and stay safe.

Michael Calabrese, PE
2019-2020 President
c021@ashrae.net

Programs & Special Events Updates

We will be moving to an online-based professional meeting format, providing PDH's. We will be using GoToMeeting/Webinar to provide continuous service to our Chapter. These online meetings will be free for Chapter members.

The 90.1 Seminar will be rescheduled due to the current circumstances. Our feedback was that in-person instruction was preferred but there will be an online option as well. We will be announcing the rescheduled seminar shortly, pending speaker coordination.

Tim Reinking
2019-2020 Programs Chair
c021pe@ashrae.net

ASHRAE Basic HVAC Course Update

We regret to inform you that due to government restrictions, Society recommendations and health concerns, the remaining classes will be online. Thank you for your understanding.

We will process the certificates and send them in some form or format. Per the recent orders from Governor Wolf, physical operations at both the ASHRAE Chapter Office and the AIA Chapter Office are closed.

Jim Lill, PE
2019-2020 School Coordinator
PhilaBasicHVAC@outlook.com

ASHRAE Philadelphia Chapter

Sponsored by: Burns

ASHRAE 90.1 Technical Seminar

*Rescheduled

Wednesday, September 16th
&
Thursday, September 17th

Live Instruction & Remote go-to-meeting

For More Information Contact: c021@ashrae.net or 610-971-2169

16 PDHs

Schedule

Wednesday September 16, 2020

7:30 AM -8:00 AM	Registration
8:00 AM -8:30 AM	**Intro, IECC, User's Manual, Scope**: Larry Spielvogel, PE, Past 90.1 Chair
8:30 AM - Noon	**Building Envelope:** Joseph Deringer, AIA, SuperB, Past 90.1 Envelope Chair
12:45 PM -1:30 PM	**Building Envelope:** Joseph Deringer, AIA, SuperB, Past 90.1 Envelope Chair
1:30 PM - 3:45 PM	**Lighting**: Carl Watson, PE, Consulting Engineer & Code Official
3:45 PM - 5:00 PM	**Energy Modeling & App G**: Michael Tillou, PE, Atelier Ten, 90.1 ECB Committee

Thursday September 17, 2020

7:30 AM - 8:00 AM	Registration
8:00 AM - 8:30 AM	**Intro, IECC, User's Manual, Scope**: Larry Spielvogel, PE, Past 90.1 Chair
8:30 AM - Noon	**HVAC Systems**: Dick Lord, Carrier, 90.1 Vice Chair, 90.1 Mechanical Committee
12:45 PM - 3:00 PM	**HVAC Equipment**: Dick Lord, Carrier, 90.1 Vice Chair, 90.1 Mechanical Committee
3:15 PM - 4:00 PM	**Service Water Heating**: Dick Lord, Carrier, 90.1 Vice Chair, 90.1 Mechanical Committee
4:00 PM - 5:00 PM	**Compliance**: Ernie Conrad, PE, Consulting Engineer, 90.1 Compliance Committee

The Philadelphia Chapter of ASHRAE is offering a comprehensive, in-depth and unique two-day program covering ANSI / ASHRAE / IES Standard 90.1 (2016) Energy Standard for Buildings (except Low-Rise Residential Buildings). This is the mandatory energy code in New Jersey, an option in Philadelphia and Maryland, and an expansion of the optional energy code in the rest of Pennsylvania. A program of this magnitude and depth is not available anywhere else and at this low a cost. Registration is open to everyone interested, and especially members of AIA, IES, IALD, USGBC, and CSI. **All presenters are the people who write and enforce the 90.1 Standard.**

Location:

Burns Engineering, Training Room
Two Commerce Square
2001 Market Street, Suite 600
Philadelphia PA 19103
215-979-7700

Cost:

$100 Chapter Member and Code Official
$135 Society Member
$200 Reciprocal Society Member
(AIA, IES, IALD, USGBC & CSI only Information required)
$250 Guest

Registration fee includes both days and handouts.
A continental breakfast, lunch, snacks and refreshments will be provided each day.

Standard 90.1 & 90.1 Users Manual for are available for purchase:

$90 Chapter Member or Code Official - Standard 90.1 (2013/2016/2019)
$110 Chapter Member or Code Official - 90.1 User Manual (2013/2016/2019)
$110 ASHRAE Society Member - Standard 90.1 (2013/2016/2019)
$125 ASHRAE Society Member - 90.1 User Manual (2013/2016/2019)
$120 Guest - Standard 90.1 (2013/2016/2019)
$130 Guest - 90.1 User Manual (2013/2016/2019)

Available at a drastically reduced price when paid in advance with the seminar registration. Ordinarily these books sell to non-ASHRAE members for $166+shipping, and to members for $133+shipping.

Register: https://ashraephilly.org/meetinginfo.php?id=104&ts=1583026970

Remote Participation (Online): Register for the seminar and then email c021@ashrae.net for the link and meeting details.

Public Transportation: *SEPTA Suburban Staton (3 blocks), AMTRAK 30th St Station (5 blocks)*
Nearby Hotels: *Sonesta, Soffel, The Westin, Holiday Inn Midtown, etc.*
Parking: *Burns discounted parking ($13) at the William Penn House garage, 36 S.19th St.*

April Meeting Speaker and Abstract



Drury B. Crawley, PhD

Director, Building Industry Development, Bentley Fellow
Bentley Systems, Inc.

presents

"Getting from AEDGs to Zero-Energy Buildings "

Dru Crawley is Bentley Fellow and Director, Building Performance Research focusing on building performance, BIM, net-zero-energy buildings, sustainability, resilience, and smart cities. Prior to being elevated to Bentley Fellow in 2014, he led development of Bentley's suite of building performance software for four years. Before 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 40 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 and Vice Chair 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 elevated to ASHRAE Fellow in 2009 and achieved ASHRAE BEMP (Building Energy Modeling Professional) certification in October 2012. Recipient of ASHRAE 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 Vice President since 2018, at-large board member since 1998, Fellow in 2012, Regional Affiliate Liaison since 2006), IBPSA-USA (IBPSA-USA President since 2019, board member since 2013, vice president 2017-2019, treasurer 2013-2017), U. S. Green Building Council (USGBC, past vice chair and member, 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 30 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 150 presentations and workshops to more than 80 ASHRAE chapters throughout the world.

Abstract

Buildings account for more than 40% of worldwide primary energy use. ASHRAE, IESNA, USGBC, AIA, and DOE have collaborated on a series of Advanced Energy Design Guides (AEDGs) for significant energy savings beyond Standard 90.1. The guides provide prescriptive packages for each climate zone to reach the energy savings goals of 30% and 50%. AEDGs for 50% savings in five building types were completed in 2014. This presentation provides an overview of the AEDG process as well as examples of packages and case studies from the 50% guides. Also presented are examples of today's zero-energy buildings and the key systems and technologies they employ.

Young Engineers in ASHRAE (YEA) Update

We regret to inform you that due to government restrictions, society recommendations and health concerns, the "Union Game" is cancelled.

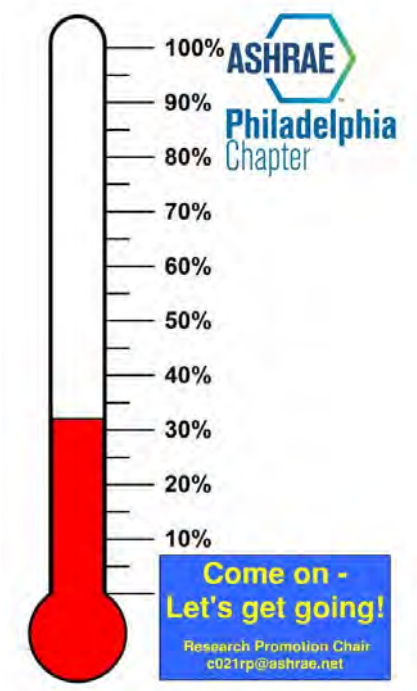
Watch out for an invite to our first Virtual Happy Hour!

Tyler Holland
2019-2020 YEA Chair
c021yea@ashrae.net
(303) 552-1226

Government Affairs (GA) Update

We regret to inform you that due to government restrictions, society recommendations and health concerns, the "Pennsylvania Day on the Hill" is cancelled.

Anthony Scaccia, PE
2019-2020 GA Chair
c021ga@ashrae.net



Research Promotion Update

The RP Campaign supports research as well as ALI and educational programs, Endowed Research through ASHRAE Foundation, YEA programs, ASHRAE Scholarships, and the General/Unrestricted fund.

Please consider donating to ASHRAE RP. Our projects develop the future technology to battle viruses.

Gary Debes
2019-2020 RP Chair
c021rp@ashrae.net

To donate online, go to:
https://www.ashrae.org/about/support-ashrae

Student Activities (SA) Update

We regret to inform you that due to government restrictions, Society recommendations and health concerns, the in-person Transportation YOU's "College Partnerships Fair" at Drexel is cancelled.

We have an new online program on April 18th!

Go here for more information: https://ashraephilly.org/meetinginfo.php?id=113&ts=1586450709

Go here to register: https://attendee.gotowebinar.com/register/2119755470165029134
After registering, you will receive a confirmation email containing information about joining the webinar.

Noreshvarman Manisagar
2019-2020 SA Chair
c021sa@ashrae.net



PHILADELPHIA CHAPTER PROGRAMS CALENDAR 2019-2020

Date	Time	Venue	Session / Topic	Theme
Thursday, February 13, 2020	**12pm - 4:30pm**	**Burns Engineering Training Room**	**Seminar: "Business Development for Engineers" - Ralph Kison -**	**-Multidisiplinary Meeting**
Thursday, February 13, 2020	**5pm - 7:30pm**	**Yards Brewery**	**"Mentor-Mentee Relationship" - Ralph Kison -**	**-Student Activities, Scholarship Awards -Joint session with SMCA**
Thursday, February 13, 2020	**7:30pm - 8:30pm**	**Yards Brewery**	**Yards Brewery Tour**	**-Refrigeration Tour**
Thursday, March 12, 2020	5pm - 7:30pm	Penn's Landing Caterers	"Building Science" CHAOS Lab (Cooling and Heating for Architecturally Optimized Systems) Forrest Meggers, PhD	-*2020-2021 Chapter Officer Nominations -Poll membership for 2020-2021 Chapter Programs
Tuesday, March 24th thru Wednesday, March 25th	7:30am - 5pm	Burns Engineering Training Room	Seminar: "IECC/ASHRAE 90.1-2016" - Spielvogel and Associates -	-Joint Seminar with AIA, ICC, IES, IALD, USGBC, CSI
Thursday, April 23, 2020	5:30pm - 7pm	TBD	Social Event	-Young Engineers in ASHRAE (YEA) & Student Activities Event (Social)
Tuesday, April 28, 2020	12pm - 2pm	Hosted by AIA Center for Architecture	"TBD" Drury Crawley, PhD	-Joint Session with AIA
Thursday, May 14, 2020	5pm - 7:30pm	TBD	"Airflow Management for Laboratory/HealthcareFacilities" Kishor Khankari, PhD	-Government Activities (GA) -Past-Presidents Night
Monday, June 1, 2020	11am - 7pm	DuPont CC	Annual Golf Outing	Social Event
TBD	5pm - 10pm	Citizens Bank Park	Baseball Phillies vs. TBD	Social Event
Thursday, August 13 thru Saturday, August 15, 2020	-	Washington DC Key Bridge Marriott	Region 3: Chapters Regional Conference (CRC) - Hosted by the National Capital Chapter -	Membership Training

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!

This 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.

Chapter Technology Transfer Committee (CTTC) Update

Please see the next four pages for this month's CTTC article, "*ASHRAE Presidential Member and Professor Discusses Coronavirus and HVAC.*"

2019-2020 CTTC Committee
c021cttc@ashrae.net

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the NEWS

ASHRAE Presidential Member and Professor Discusses Coronavirus and HVAC

Bahnfleth shares COVID impact on HVAC industry and IAQ solutions



March 16, 2020

Maria Taylor

The ACHR NEWS spoke with William Bahnfleth, ASHRAE presidential member and professor of architectural engineering at the Pennsylvania State University and founding director of its Indoor Environment Center, about the

While you can't rule out airborne transmission entirely, it's probably not the only and maybe not the predominant mode of transport. Because there are three distinct ways of transmitting an infection, even perfect control of airborne pathogens would not eliminate all risk

ACHR NEWS: What can be done to help protect against airborne particles that might be circulated by the HVAC systems if they get up there?



Bahnfleth: One thing that reduces risk is having 100 percent outside air system. Dedicated outdoor air systems are becoming popular; they don't recycle the air from one space to others.

Air filtration is a good idea, but it's got to be pretty high-efficiency filtration because the particles that are infectious are going to be pretty small. The MERV 8 filter that you're required minimally to put in under Standard 62.1 isn't very effective against particles of that size. In terms of the MERV scale, you probably need to be putting in a 13 to start to have a specific effect on PM 2.5 sized particles. Otherwise, it's going to be passing through a lot of the small ones that may be may be infectious.

Keeping surfaces clean is also important, and there are plenty of [UV] devices around now that are used mainly in healthcare environments to disinfect surfaces during unoccupied periods. One of the things that we've researched at Penn State is cooling coil irradiation systems. I've been told by some people who've been doing it for years it keeps the coils pretty much like new.

ACHR NEWS: What kind of questions do you anticipate that contractors' clients are going to be calling about, and what can a contractor recommend?

Bahnfleth: Better filters; humidity control; maybe room air cleaners if you don't have a central system in with high efficiency; filtration; and if you can get good home UV products, some manufacturers will put those into your furnace air conditioner for you. It's basically the same solutions as we would use in other types of buildings, but packaged for the residential market.

If you've got a central a/c system, one thing you can do is look at putting in better filters, which is something I did in my own house. We had a really low efficiency filter, basically just a metal screen filter in our air handling unit, and we found that we could put in MERV 13 filters and it runs just fine — it just means that the system runs a little bit longer, which is actually better in cooling season because it's used to humidify.

Just running the fan with the cooling off, to keep circulating air through it, will help remove particles. The big problem with the filters in home air conditioning equipment is that the systems are not doing anything when they're off, so you have to intentionally make it run to circulate air if you want it to be a whole house

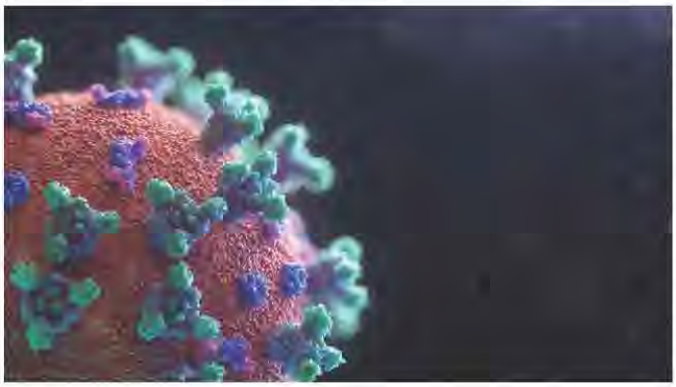
impact of COVID-19 on the HVAC industry and the kinds of IAQ solutions contractors can offer to their customers in response.

ACHR NEWS: How do filters, UV, and other HVAC technologies help control the spread of viruses, and how effective are they?

READ MORE ABOUT
• Coronavirus Coverage
• Health and HVAC

Bahnfleth: In the ASHRAE position document on airborne infectious diseases, three methods of controlling airborne infection are identified that actually have proof of efficacy. One is ventilation, and the other two are particle filtration and UV.

Any air cleaner that removes particles has some potential to get rid of coronavirus. The question is, what efficiency of filter is effective enough that it will have a significant impact on how likely people are to get affected by the airborne route? And that's something else we should talk about. Even HEPA filters that have been tested in the laboratory with viruses will have some level of penetration. Not much — 2 percent. But if anything gets through, and if it's a very virulent pathogen, that doesn't mean that you're perfectly protected against infection by that filter. Same thing with UV. There's definitely UV susceptibility of coronaviruses ... it's maybe somewhat less than the net of influenza, but still susceptible. So if you were treating contaminated air or contaminated surfaces with UV, you could expect to reduce the concentration of coronavirus on it by some amount.



ACHR NEWS: One of the big questions for the HVAC world is how significant is airborne transmission of coronavirus?

Bahnfleth: The current consensus is that the transmission is predominantly large droplet transfer from people coughing or sneezing within a fairly close range of other people — 6 feet is what the CDC is saying. The larger the droplets are, the faster they will fall to the ground or other surfaces. If I were to cough or sneeze in your direction unprotected, some of the virus-containing droplets coming out of my mouth or nose might enter your mouth, eyes, or nose and cause an infection.

Then there is the door knob/toilet seat theory of fluid transmission: that is, infectious material, say from someone coughing or sneezing into their hand, touches a surface, and then somebody else touches it and then touches their own eyes or mouth. The transfer is done that way, and that's why people use paper towels to open the bathroom door.

There's also the potential for airborne transmission. And if viruses that are viable are in those droplets that you're producing, some of them will be small enough that they will stay airborne for a long time. So, it's not impossible that infectious particles in the air could stay aloft long enough to be collected, say at the return grille of an HVAC system, go through a duct, and infect someone in a different space.



air cleaner. Filtration can be done in the room, too; local air filtration may be a better way to deal with this large droplet kind of stuff.

Another thing that has emerged is paying attention to relative humidity. The recommendation for a long time has been to try to keep minimum relative humidity between 40 and 60 percent, because viruses are least viable in that range. Many commercial buildings have humidity control to keep conditions in this range, but in a home in the winter — especially if it's leaky and in a cold climate — humidity drops into the 20s or lower. A well-maintained home humidifier that keeps your relative humidity at the recommended level is a good idea.

ACHR NEWS: Is there anything contractors should *avoid* saying or recommending?

Bahnfleth: From my experience, the important thing to keep in mind is that infection control usually doesn't have a silver bullet. Risk reduction involves doing a number of different things, and engineering controls — like putting in better filters or putting UV into your building — is not the only thing you should do. If I were a contractor, I'd be prepared to suggest to a homeowner other things they might do that are not necessarily HVAC-related to reduce infection risk. Things like hygiene, being careful about whether you touch your face, whether you're shaking hands with people, whether you're washing your hands frequently — those, in many ways, are just as important as doing the right things with your HVAC.

Recent Articles By Maria Taylor

Project Files: Episode 30 — Eastman Business Park

Jump On Board the Newest Trends in Corporate Swag

HVAC Sees High-End Sales Boom due to COVID-19

Tennessee Valley Authority Offers Incentive For UV-C Disinfection In Commercial HVAC Systems

HVAC Contractors Show Recovery After Pandemic Slump



Maria Taylor is Managing Editor for The ACHR NEWS. Maria holds a bachelor's in English from Alma College and has worked in journalism since 2013. Contact her at 248-786-1741 or mariataylor@achrnews.com.

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

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www.ashraephilly.org

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https://www.linkedin.com/company/ashrae-philadelphia-chapter/

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.

Membership Promotion Update

New Society Member
Edgar Martinez

New Chapter Members
Joan Dierkes
Joseph Miranda
Brandon E Smith
Tara Moken
Daniel Edwards
Mohammad Lami

What are the benefits of paying Philadelphia Chapter dues* ?

Discounts:

Session up to $20 off
$200 Discount for Basic Class
$150 Discount for 90.1 Seminar
Free Tech Seminar
Resume posted on our webpage
Life Members can attend sessions, up to $30 off
Free ASHRAE Philadelphia Area Directory
And much more!

* Note that Philadelphia Chapter Membership Dues are $35/year.

To receive discounts, please remit you Chapter dues when renewing online or applying for a new membership. Feel free to upgrade online (link below) or contact c021mem@ashrae.net for assistance.
https://ashraephilly.org/meetinginfo.php?id=111&ts=1582077507

Nate Carleton
2019-2020 MP Chair
c021mem@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
PE = 4 points
Accredited degree = 6 points
Industry experience = 1 point/year