

FOG DISPENSER



Friday, April 24 Meeting

PROGRAM:

**ELECTRIFICATION OF BUILDINGS:
HVAC Engineers Leadership Role in a Decarbonized
Buildings - The whys and hows of a low carbon future.**

SPEAKER:



PETER RUMSEY, PE, CEO AND FOUNDER OF POINT ENERGY INNOVATIONS

Peter is the founder and CEO of Point Energy Innovations, a new consulting firm focused on working directly with owners and developers in the US and globally on the next generation of profitable, low energy, high performance and decarbonized buildings and industrial facilities.

Peter is an ASHRAE fellow. He has received numerous awards including the Renewable Energy Innovator of the Year and ASHRAE's prestigious Award of Engineering Excellence--only given 4 other times in ASHRAE's 100-year history.

He is a graduate of UC Berkeley and an ASHRAE Fellow. For over a decade, he has taught a graduate level course on advanced buildings at Stanford University.

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**FRIDAY, APRIL 24
12:00 NOON - 1:00 pm**

**PLEASE JOIN MY MEETING
FROM YOUR COMPUTER,
TABLET OR SMARTPHONE.**

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**GOLDEN GATE ASHRAE
FOG DISPENSER
VOLUME L16- NUMBER 7
APRIL 2020**

Presentation Summary

Peter Rumsey, PE will discuss how ASHRAE members can play a key role in the transformation of the building sector towards zero carbon HVAC systems and buildings.

Mechanical engineers are responsible for the single largest part of carbon emissions in buildings, the HVAC system. Fortunately, there are a wide variety of efficient electric heat pump systems that can replace burning fossil fuels to heat buildings. Coupled with 100% renewable or zero carbon electricity, we can easily lead the way to decarbonized buildings. Peter has years of experience designing very efficient all electric and net zero energy buildings. He will discuss his experience with buildings such as the Exploratorium, developer lead all electric buildings and the future of building HVAC systems. He will also look at the designer's professional carbon footprint and how that compares to our personal footprint. He will cover a lot of ground. Be ready to ask questions and enjoy your lunch hour.



Please join my meeting from your computer, tablet or smartphone.

<https://global.gotomeeting.com/join/136597221>

You can also dial in using your phone.

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EVENT CALENDAR



**FOR MORE INFORMATION AND DETAILS
GO TO WWW.GGASHRAE.ORG**

NEXT MEETING:

THURSDAY, APRIL 24

TOPIC: Electrification of Buildings

LOCATION: Online Meeting

THURSDAY, MAY 21

TOPIC: PRODUCT SHOW

LOCATION: PG&E Center

SPEAKER: TBD

THURSDAY, JUNE 18

TOPIC: Resiliency: Batteries, PV and Beyond

LOCATION: 650 California St.

SPEAKERS/LOCATION: TBD



Tom Gilbertson, Chapter Historian

APRIL 2020

"April showers...may come your way!...they bring the flowers...that bloom in May!"... (Louis Silvers and B. G. DeSylvia 1921)

Hard to think of a more descriptive song at this time...especially as we "shelter-in-place"...waiting...and hoping...for a better time!...When will that better time occur?...and what change will it bring to our ASHRAE-group?

ASHRAE-related activity plays heavily into the human basics needs of "food and shelter"...and then followed closely by "education" and "work-place activity"... (make that "jobs").

"Historically" we don't have much experience with these "virus-driven" times...and we really can't measure what the changes will be. But these "times" could really affect our industry. So, let's "look ahead" to what might be...and speculate...rather like "historically looking back" at this time...from several years hence.

"School is out"...no students! (California has right at 6,200,00 students in K-12)...in those brick and mortar structures...structures (California has 10,100 +/- school buildings)...that meant so much to our industry. Schoolrooms and their construction have been a venerable playpen of ASHRAE activity...a source of business over the years for our members...an excuse to develop special talents for the schoolhouse needs...now we find them "empty". (In the late 1950's and early 1960's the Los Angeles-of Johnson Controls bid on at least one school a day...for over 5-years.)...Talk about design and construction activity!... and the attendant opportunity for our industry!

How long before the "forced-experiment" of "on-line" schooling is fully appreciated...then honed, and perfected?...before society says... "wait a minute"...that online-schooling worked so well, in many cases... that WE can get by with "25% fewer classrooms"...

Think of the energy savings if we did that!... "Turn out the lights" ...in 25% of our school buildings and secure that A/C plant!...That would save lots of energy...and then include the avoided-cost of not having to move the 1,500,000 students (that is 25% of the children in school in California) from home to school and back, each day.

The virus has the power to drive our industry to consider such a scenario, because we are doing it right now!...we are already... "trying it out".

Most of our ASHRAE-design industry, because of the virus...now works at home...along with virtually all other office workers. When the "all clear" is sounded and it is then safe to return to our offices...only to find that a substantial percentage of us do not want to commute "2 hours/day"...and that we did as much work...or more work from home...What then?

Does the Country need 25 or 30% less office space?...Look what that that would save in energy consumption!...and of operating cost to the economy...To say nothing of the "unintended consequences" of significantly reduced air pollution because of the reduced commuting.

Our industry may be much more impacted that we realize. As a result of our forced experiment of "staying at home". We will find it is hard to "restart the clock"...and "go back"?...Remember...UBER figured out how to put a bunch of idle cars to use...and pretty much destroyed the taxi business...and seriously "dented" the new car market.

What about the impact on "housing"?...by this virus situation?... "Housing" is impacted somewhat differently than schools and offices...actually, quite the opposite. But, with "housing"...individuals generally have to "pick-up the costs"...as opposed to schools and offices....Which leads us to the concept of "affordable-housing"...and what can our ASHRAE-related industry do about that?...perhaps more than you think.

What IS "affordable-housing"?...realize that our ASHRAE-driven involvement in housing influences...and "drives"...40 to 45% of the cost of housing...Remember, our ASHRAE-industry not only speaks to heating, cooling, ventilating, and domestic water heating, but the walls, roofs, and the glazing of the envelope...How we ASHRAE-people direct these areas...we also drive the electrical design, including the lighting.

So...what are YOU doing to design projects that seek to keep "housing"...affordable? ...You are much more important to this issue than you may think. We get to the end of our "Historical-space"...and we have not even mentioned ASHRAE's part in the basic need of "Food:... (more on that some other time).

Historically...at some time hence...when we look back...at these unusual times of virus -inspired behavior, we will be able to see how important ASHRAE...was...and, is...in solving all of the issues.

Save the Date:

REDWOOD EMPIRE GOLF TOURNAMENT
October, 30 2020



Chapter Technology Transfer : 2020 TECHNOLOGY AWARDS

ASHRAE Golden Gate Chapter is now accepting submission for the Technology Awards Program. Please contact me or Alex Fung (copied on this email) if you are interested in submitting a project (application form attached). **Deadline for submission enters is April 17th, 2020.**

The ASHRAE Technology Awards recognize outstanding achievements by members who have successfully applied innovative building design in the areas of occupant comfort, indoor air quality and energy conservation. Their designs incorporate ASHRAE standards for effective energy management and IAQ. Performance is proven through one year's actual, verifiable operating data. **Application is easy! Get recognition for your great work!**

IMPORTANT! Eligible projects must be occupied for one year prior to the national due date (September 2017), and one year of energy consumption data should be included. Your project must have been occupied by September 2019 to be eligible for the chapter awards.

There are three stages of competition and awards: Chapter, Region and Society/National. The first step in this process is to submit your project to the Chapter level competition.

First place winners from the Chapter competition move onto the Regional competition. The Regional first place winners are eligible to move onto the national Society/National competition. There are multiple Categories of buildings are eligible for application, new, existing and existing building commissioning (EBCx): Commercial, Institutional Educational, Institutional Other, Health Care, Industrial, Public Assembly, and Residential.

Please see our CTTC website or the following links for more info.

- Program Information: <https://www.ashrae.org/membership--conferences/honors--awards/technology-awards-program>
- Overview and Hints: <https://www.ashrae.org/membership--conferences/honors--awards/technology-awards-program-overview>
- Short Form Application: <https://www.ashrae.org/File%20Library/docLib/HonorsandAwards/AwardDocs/Tech-Award-Application-Short-Form-January-2016.pdf>

Your application should include the following:

1. Short form application
2. Two-page narrative
3. OPTIONAL: Up to four 11x17 pages of pictures or schematics

For any more information or for submissions please e-mail:

- Zeid Arnaout, CTTC: zeidarnaout@gmail.com

Please feel free to forward this to your colleagues that may be interested.



**New Deadline:
APRIL 17, 2020**

Looking for K-12 STEM Activity Ideas?

by Juliana, K-12 Lead

Have kids at home and looking for some activities to do with them? You can find STEM activities on the ASHRAE Student Zone page. Many of these use common household items.

<https://www.ashrae.org/communities/student-zone/k-12-activities>

Call for Summer Travel Grant Applicants!

by Richard Paillon, Scholarship and Grant Lead

The **2020 ASHRAE Annual Conference** will be held in Austin, TX, from June 27-July 1, and the Golden Gate chapter is awarding travel grants to **TWO** lucky students! Each travel grant is worth up to **\$1,150**.

The Annual Conference is not only a great opportunity to learn about innovative HVAC&R technologies, but also to meet future colleagues and employers from around the globe all while exploring a new city.

Applications will be emailed to student members soon. Request an application from aggcstudents+SummerTG@gmail.com.

Hope to see you there!

APPLICATION DEADLINE: 5:00 PM PDT May 1st, 2020

Please note: ASHRAE continues to monitor the COVID-19 outbreak. At this time, preparations for the 2020 Annual Conference in Austin are moving forward as planned. ASHRAE, the host hotel, and the convention center are working together closely to protect the safety and welfare of our volunteers, conference attendees, and staff. Society is following the recommendations of the World Health Organization and the Centers for Disease Control and Prevention and will comply with relevant national, state, and local laws and regulations.



Student Activities is Creating a Local Alumni Network!

by Megan Dawe, Post-High Lead

Calling all alumni from our Golden Gate schools to enter our Alumni Network database. This list will be provided to student members to make connections and increase involvement in the Golden Gate Chapter. Designation as 'available for mentorship' is optional - up to you!

Enter your information here: https://docs.google.com/forms/d/e/1FAIpQLSeJSMahdAtP2Pbv0O1IPXK6bfvp4wSi9eTfrOfDKsEMbHhuQ/viewform?usp=sf_link.



Does Your Company or Organization Offer Student Internships?

by Megan Dawe, Post-High Lead

Many of our student members seek internships to fulfill their academic requirements and gain hands on experience. Student Activities is working to connect student members with local internship opportunities and promote internal collaboration.

Fill out your company's information here: https://docs.google.com/forms/d/e/1FAIpQLSe1FsT2qbLWTAhBBI7d7PGB1u49gt6dDLgMMQDG7gKwriniHA/viewform?usp=sf_link.





Sanjil Karki, Membership Promotion Chair

Membership Promotion Committee help!

I am looking for volunteers to help on the Membership Promotion Committee. The role would include recruiting new members to join ASHRAE and helping with membership retention. The time commitment would be about an hour a week. Please contact me or the other committee or board members if you are interested in participating and contributing to our local and national society. We would be happy to answer any questions you have on the responsibilities. Link to my contact information is here <http://ggashrae.org/join.php>.

Welcome New Members!

We are looking forward to another successful year of retaining our current members and recruiting new ones. When renewing your memberships, please pay your local chapter dues AND Society dues. Reminder: Golden Gate (Local) and Society dues both need to be paid. Yes, those are two separate transactions. Throughout the year I will list the members who joined over the previous month, be sure to keep a look out and give them a warm welcome!

Below are our newest members who joined over this past month:

NEW MEMBERS

Mr Moustafa Garcia-Bengochea

Mr Chenfu Lin

Jose Cruz



Brian Chacon, Membership Promotion Chair, Research Promotion Chair

What is the Resource Promotion Campaign?

The RP Campaign is an annual fundraising campaign benefiting the funding of numerous ASHRAE Programs. These programs include:

- **ASHRAE Research**
- **ASHRAE Scholarships for undergraduate students**
- **ASHRAE Learning Institute (ALI) development of new courses & materials**
- **Graduate Research Projects (Grants-in-Aid)**
- **Young Engineers in ASHRAE (YEA) Leadership Training**
- **Permanently endowed support to all of the above programs**

The RP Campaign is overseen by the RP Committee, a standing ASHRAE Committee. The committee is made up of 14 Regional Vice Chairs (RVC), 1 Consultant (past RVC), 3 Vice Chairs (past Consultant), and Chair (past Vice Chair). Staff support includes a 3-member team based at ASHRAE Headquarters. **The RP Campaign raises over \$2.2 million a year from over 6,000 donors.** These donors are made up of ASHRAE Members, industry associations, and industry organizations.

Your contributions are much appreciated. Thank you for making a difference and shaping tomorrow's built environment today.

Your Board has stepped up to kick start the campaign by donating at least \$100 each!

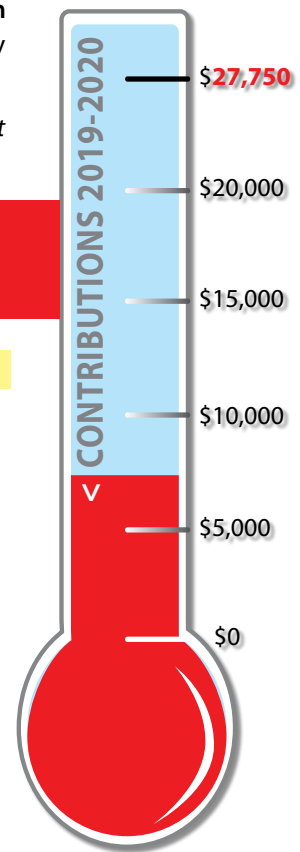
DONORS IN 2019-2020:

ORGANIZATIONS
\$250 TO \$999

ORGANIZATIONS
Up to \$249
GG ASHRAE Golf Tournament

INDIVIDUALS
Over \$1000
Glenn Friedman

INDIVIDUALS
Up to \$249
Jason Lesser
Alyse Falconer
Brian Chacon
Jeremy Martinez
John Gardner
Juliana Valez



Donations are tax deductible, by check, credit card or online at www.ashrae.org/contribute

Mail Checks to: ASHRAE RP: 1791 Tullie Circle, NE: Atlanta, GA 30329

For more information, please visit Research and Promotions section on www.ggashrae.org or contact RP Chair Brian Chacon at (415) 742-9350, or bchacon@ascenthvac.com

GOAL:
\$27,750
CONTRIBUTIONS:
\$7,300.00

2020 ASHRAE/ASPE PRODUCT SHOW ANNOUNCEMENT

Hello All,

We would like to announce that this year's Product Show will take place on **Thursday, May 21st 2020**, at the PG&E Energy Center in San Francisco.

Since last year's event was an absolute hit, we are bringing back a similar format. It will consist of a combination vendor booth showcase, six 30 minute technical presentations, along with a raffle. Doors will open at 2:30 PM to the attendees, and the event will end at 6:30 PM. Vendors who choose to purchase a booth will be able to set up for the event at 1:30 PM.

One key change to this year's event will be that it is open to members of ASHRAE, as well as the American Society of Plumbing Engineers (ASPE). Expect a mix of vendors and technical speakers coming from both the Mechanical and Plumbing trades of the industry.

More information to follow soon, we are looking forward to working with everyone on this event again, to make it as good as last year's!



John Plecnik
(510) 807-2033
John.plecnik@jci.com



Danny Helms
(510) 605-6784
Danny.1.helms@jci.com



Dylan Dutt
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Mitch Pinsker, Government Affairs Committee Chair (GAC Chair)

DHS Designates HVAC Engineers as “Essential”

The Department of Homeland Security has expanded its definition of “essential” workers during the COVID-19 pandemic. The previous guidance mentioned HVAC only once. The updated guidance lists HVAC seven times, including HVAC engineers, in various sectors such as transportation and logistics, and information technology. Read more here:

<https://www.cisa.gov/publication/guidance-essential-critical-infrastructure-workforce>.

Guidance for Building Operations During the COVID-19 Pandemic

By Lawrence J. Schoen, P.E., Fellow/Life Member ASHRAE

What are some best practices for buildings that remain open during the pandemic? Once the non-HVAC related basics such as sanitizing and disinfecting those buildings are addressed, Lawrence J. Schoen, P.E., Life Member/Fellow ASHRAE, recommends several HVAC-related actions. These strategies include increasing outdoor air ventilation and disabling demand-controlled ventilation. This article originally ran in ASHRAE Journal Newsletter and has been updated to include Schoen’s answers to reader questions. Read more here:

<https://www.ashrae.org/news/ashraejournal/guidance-for-building-operations-during-the-covid-19-pandemic>

ASHRAE President Submits Testimony to U.S. Senate Committee on HFC Phasedown Legislation

ASHRAE President Darryl Boyce submitted written testimony to the U.S. Senate Committee on Environment and Public Works concerning S. 2754, the “American Innovation and Manufacturing Act of 2019” (AIM Act). The bill would require a 15-year phasedown of high global warming potential HFCs in the U.S. ASHRAE has stated its support of the AIM Act, as it provides a clear and orderly path to transition out of high-polluting hydrofluorocarbons (HFCs) and into a next generation of refrigerants. The AIM Act also creates an element of certainty needed for the heating, ventilation, air-conditioning and refrigeration (HVACR) sector.

President Boyce offered the Senators ASHRAE’s technical expertise and stated, “ASHRAE stands ready to apply its technical expertise and leadership in support of the transition to a next generation of refrigerants, similar to the contributions we made in the successful phase-out of ozone-depleting CFC and HCFC refrigerants in the past.” The testimony can be found here:

https://images.magnetmail.net/images/clients/ASHRAE/attach/GAU_4920_DKB.pdf

Mechanical Engineer - PACE Engineering, Inc

PACE Engineering, Inc., Redding, California has an opening for an experienced mechanical engineer beginning immediately. Candidates must have a BS in Mechanical Engineering and equivalent to 5+ years of experience.

PACE is a mid-sized (50 employees) multi-discipline engineering firm. Our range of mechanical engineering projects include working with architectural and other engineering professionals to create HVAC, piping, plumbing, control systems and fire suppression designs for schools; offices; hospitals; power utilities; water and wastewater utilities; and other facilities.

PACE offers industry wide competitive salary and benefits, as well as ownership potential, in a community with low cost of living.

Send resumes to PACE Engineering, Inc., 1730 South Street, Redding, CA 96001,
or email to klayton@paceengineering.us

Mid-Level HVAC Engineer, R&A Engineering Solutions, Sacramento, CA

R&A Engineering Solutions is seeking an HVAC Engineer with 4-7 years experience, who would be responsible for representing the Firm while managing small to mid-size projects. OSHPD experience preferred. Required skills include building load calcs, energy modeling, and HVAC system design. The position will include establishing project scope, performing field surveys, and clearly directing staff through the design process.

Established in 1976, R&A is a leader in the design of Healthcare and Institutional Facilities. We offer full medical/dental benefits, 401k plan and competitive salary based on experience.

Please submit a resume and cover letter to braden@ra-solutions.com.

Should shelter-at-home mandates still be active in May, the in-person class will be cancelled and students registered to attend in person will be notified that they have been automatically moved to the online training.

Electric Heat Pumps for Domestic Space and Water

Interested in reducing residential greenhouse gas emissions and creating zero net energy buildings? This class will provide an overview of electric heat pumps for space heating including ducted and ductless systems as well as water heating applications.

Wednesday April 15, 2020, 9:00 AM – 4:30 PM ONLINE

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/281/electric-heat-pumps-for-domestic-space-and-water-heating>

Rapid Decarbonization Throughout the Building Lifecycle

To deal with increasing impacts from climate change, the building industry must revolutionize standard practices for design, construction and operation. This event will feature industry professionals who are leading efforts in decarbonization of commercial buildings.

April 21, 2020, 1:00 PM – 4:30 PM SAN FRANCISCO – PACIFIC ENERGY CENTER, ONLINE

Register to attend in person: <https://pge.docebosaas.com/learn/course/external/view/classroom/443/rapid-decarbonization-throughout-the-building-lifecycle>

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/445/RapidDecarbonizationThroughouttheBuildingLifecycle>

Fundamental Concepts in Operating and Retrofitting Energy Efficient Data Centers

This introductory level course describes energy use and efficiency opportunities in data centers. The instructors will provide participants with a roadmap for pursuing cost-effective retrofit opportunities for server closets to utility-scale facilities. A discussion of current industry trends will assist participants in making efficient and practical IT and Electrical decisions.

Tuesday, April 21, 2020, 9:00 AM – 4:30 PM

Register to attend in person: <https://pge.docebosaas.com/learn/course/external/view/classroom/414/FundamentalConceptsinOperatingandRetrofittingEnergyEfficientDataCenters>

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/425/FundamentalConceptsinOperatingandRetrofittingEnergyEfficientDataCenters>

Advanced Concepts in Designing and Retrofitting Energy Efficient Data Centers

This class will focus on how to select, design, control, and commission the mechanical system with the lowest total cost of ownership (TCO) for a given data center. TCO accounts for first cost (including electrical, architectural and structural impacts), reliability, complexity/simplicity, energy efficiency, maintenance costs, future growth, and flexibility. The class will make liberal use of real data center case studies for both new construction and retrofits. This is an advanced level course for owners, operators, engineers, architects, contractors, colocation tenants, etc. with at least two years of data center experience.

Thursday, April 23, 2020, 9:00 AM – 4:30 PM

Register to attend in person: <https://pge.docebosaas.com/learn/course/external/view/classroom/291/AdvancedConceptsinDesigningandRetrofittingEnergyEfficientDataCenters>

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/252/AdvancedConceptsinDesigningandRetrofittingEnergyEfficientDataCentersSimulcast>



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Water Audit Basics for Small to Medium Size Businesses

Reducing water use can yield water, sewer and energy savings. Learn the basic skills to perform interior and exterior water evaluations including the ability to identify water waste, use of proper tools and techniques, and analysis of water use data. This class will explore latest water-saving technologies and include a virtual mock water audit.

April 28, 2020, 8:30 am to 4:30 pm Online

Register: <https://pge.docebosaas.com/learn/course/external/view/webinar/473/WaterAuditBasicsforSmalltoMediumSizeBusinesses>

Radiant Cooling and Heating Systems for Large Commercial Buildings

This course assists architects and HVAC Designers in understanding and promoting radiant cooling of thermally massive slab systems. Don't miss the latest in design techniques based on actual research from the Center for the Built Environment.

Should shelter-at-home mandates still be active in May, the in-person class will be cancelled and students registered to attend in person will be notified that they have been automatically moved to the online training.

May 6, 2020, 9:00 AM – 4:30 PM San Francisco – Pacific Energy Center and Online

Register to attend in person: <https://pge.docebosaas.com/learn/course/external/view/classroom/385/RadiantCoolingandHeatingSystemsforLargeCommercialBuildings>

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/384/RadiantCoolingandHeatingSystemsforLargeCommercialBuildings>

Kicking Carbon Out of Buildings - Design for Decarbonized Buildings

The instructor will share how heat pumps and other forms of electric heating can displace our long time carbon sources of heat. These systems already available and many are cost effective today. Come discuss this shift and how it will impact your building or construction project with one of the industry's leading experts.

Should shelter-at-home mandates still be active in May, the in-person class will be cancelled and students registered to attend in person will be notified that they have been automatically moved to the online training.

May 13, 2020, 8:30 AM – 5:00 PM San Francisco – Pacific Energy Center and Online

Register to attend in person: <https://pge.docebosaas.com/learn/course/external/view/classroom/426/KickingCarbonOutOfBuildings-DesignforDecarbonizedBuildings>

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/427/KickingCarbonOutOfBuildings-DesignforDecarbonizedBuildings>

RCx101: Identifying and Assessing Common Retro-Cx Opportunities

Training focuses on practical tools and techniques related to retro-commissioning activities. These techniques can also be used to inform the design process, troubleshoot during new construction commissioning, and improve day-to-day operations. This class is a pre-requisite for the PEC's year-long Existing Building Commissioning Workshop Series.

Should shelter-at-home mandates still be active in May, the in-person class will be cancelled and students registered to attend in person will be notified that they have been automatically moved to the online training.

May 20, 2020, 8:30 am to 4:30 pm San Francisco – Pacific Energy Center and Online

Register to attend in person: <https://pge.docebosaas.com/learn/course/external/view/classroom/374/RCx101IdentifyingandAssessingCommonRetro-CxOpportunities>

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/375/RCx101IdentifyingandAssessingCommonRetro-CxOpportunities>

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Comparing and Selecting a Lighting Controls System

This intermediate-level teaches attendees to evaluate available lighting controls and select the systems most likely to result in maximized energy savings and optimized performance for a particular project. By looking at a variety of factors, a specifier can winnow down options so an appropriate advanced lighting control system (ALCS) can be selected and designed. Instructors will use case studies and interactive exercises to illustrate steps in the evaluation and selection processes.

Should shelter-at-home mandates still be active in May, the in-person class will be cancelled and students registered to attend in person will be notified that they have been automatically moved to the online training.

May 28, 2020, 9:00 AM – 4:00 PM, San Francisco and online

Register to attend in person: <https://pge.docebosaas.com/learn/course/external/view/classroom/397/comparing-and-selecting-a-lighting-controls-system>

Register to attend online via simulcast: <https://pge.docebosaas.com/learn/course/external/view/webinar/398/comparing-and-selecting-a-lighting-controls-system>

Power, Energy and Therms: Fundamental Concepts, Monitoring Techniques and Load Disaggregation

An aspect of energy efficiency and load management projects is to understand which equipment within a facility are the greatest contributors to energy use, peak demand and overall utility costs. This class will explore methods to identify significant electric and natural gas loads using utility meters, sub-meters, dataloggers and building control systems.

June 15, 2020, 8:30 am to 4:30 pm San Jose - Environmental Innovation Center

Register: <https://pge.docebosaas.com/learn/course/external/view/classroom/366/power-energy-and-therms-fundamental-concepts-monitoring-techniques-and-load-disaggregation>

Centrifugal Pumps: Principles and Opportunities for Hydronic Systems

This training will leverage demonstration equipment, operating hydronic loops and building controls to explore pump system concepts and optimization strategies. Topics will include plotting data on pump curves, pump affinity laws, primary only vs. primary/secondary pumping, trimming impellers, variable speed opportunities, net positive suction head and cavitation.

June 16, 2020 8:30 am to 4:30 pm San Francisco – Pacific Energy Center

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/376/CentrifugalPumpsPrinciplesandOpportunitiesforHydronicSystems>

Chilled and Condenser Water Systems: Design, Performance, and Commissioning

In this training, learn the operation of equipment typically found in water-cooled chilled water systems including chillers, cooling towers and heat exchangers. Instructors will discuss various control strategies for chilled water systems, how these strategies interact and how they can save energy. Using three-dimensional (3D) models, attendees will explore topics such as variable-flow, primary-secondary chilled water plants and water-side economizers.

June 24, 2020, 8:30 am to 4:30 pm San Francisco – Pacific Energy Center

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/382/chilled-and-condenser-water-systems-design-performance-and-commissioning-issues>

June 24, 2020, 8:30 am to 4:30 pm via the Internet as a simulcast

Register here: <https://pge.docebosaas.com/learn/course/external/view/webinar/383/chilled-and-condenser-water-systems-design-performance-and-commissioning-issues>

Board of Governors

PRESIDENT

Jason Lesser
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A big thank you to the following sponsors for supporting publication of the Fog Dispenser.



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