

FOG DISPENSER



Wednesday, February 12 Dinner Meeting

MAIN PROGRAM:

TITLE 24 2019 AND BEYOND: WHAT'S NEW? HOW DO WE GET TO DECARBONIZATION AND ELECTRIFICATION?

SPEAKERS:

- RAHUL ATHALYE, Program Director, Codes / Standards, NORESCO
- STEFAN GRACIK, PE, CPHC, Alter Consulting Engineers

RAHUL ATHALYE leads codes and standards development at NORESCO. His team provides technical support to the California Energy Commission and investor-owned utilities in the form of research, policy development, and energy modeling expertise. His team is also involved in developing a roadmap for Washington State to achieve its energy reduction targets by 2030. Rahul is a voting member of the ASHRAE Standard 90.1 Envelope Subcommittee and has been a past scientific committee chair of the joint ASHRAE-IBPSA BPACS conference.

Presentation Summary

California's 2030 goals have evolved from net-zero energy to zero carbon and electrification. This presentation will discuss new metrics presented by the Energy Commission that pave the road towards electrification and decarbonization, the possible future integration of the Standard 90.1 PRM method, and look to the future as California moves into a new era of sustainable building design.

continued on next page

WEDNESDAY, FEBRUARY 12

5:30 pm to 9:00 pm

SCOTT'S SEAFOOD RESTAURANT

**#2 BROADWAY
OAKLAND, CA 94607
(510) 444-3456**

<http://www.scottsjls.com/location.html>

AGENDA:

5:30 pm

Registration and Social Hour

6:30 pm

**Dinner, Announcements
and Introductions**

7:45 pm Break

8:00 pm Main Program

9:00 pm Adjourn

COST:

**\$320.00 Chapter meeting
voucher**

GG ASHRAE Members:

Before 5pm, February 1	\$50
After 5pm, February 1	\$55

Non-Members:

Before 5pm, February 1	\$60
After 5pm, February 1	\$65

Students/Voucher Holder

Free, but please register before February 1 to help us better plan for meal and venue seats.

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**GOLDEN GATE ASHRAE
FOG DISPENSER
VOLUME L16- NUMBER 5
FEBRUARY 2020**

STEFAN GRACIK is a Co-Founder and Senior Building Performance engineer at Alter Consulting Engineers, an Oakland-based “Micro-MEP” firm focused on the design of Zero Energy and High Performance buildings, and codes and standards consulting. Stefan has spent over seven years working in building science and modeling, acting as a bridge between architecture and engineering, pursuing designs which are more comfortable with lower carbon impacts. He is passionate about evolving building codes to aid in California’s goal of carbon neutrality by 2045.

Presentation Summary

California updates the Title 24, Part 6 energy code every 3 years. The most recent update for 2019 goes into effect in January 2020. While many resources are available to find out about major changes to the code, fewer go into detail about the process by which these changes are made. Stefan will discuss the 2019 code change cycle, with a focus on the process used for nonresidential HVAC changes, and how energy modeling was used to inform the feasibility and impact of changes to Title 24, covering the cost-effectiveness studies which were carried out, and the eventual changes to the code language and compliance software. Finally, Stefan will summarize how you can get involved in future codes and standards processes, including Title 24 2022, and ASHRAE 90.1.

EVENT CALENDAR

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



NEXT MEETING:

WEDNESDAY, FEBRUARY 12

TOPIC: Let's explore Title 24 2019 Updates & Electrification

LOCATION: Scott's Seafood

- **THURSDAY, MARCH 19**
TOPIC: Radiant + Ceiling Fans
LOCATION: San Rafael Joe's, 931 4th Street
SPEAKERS: Paul Raferty + Fred Bauman
- **THURSDAY, MAY 21**
TOPIC: PRODUCT SHOW
LOCATION: PG&E Center
SPEAKER: TBD
- **THURSDAY, APRIL 16**
TOPIC: Electrification of Buildings
LOCATION: PG&E Center
SPEAKER: Peter Rumsey
- **THURSDAY, JUNE 18**
TOPIC: Resiliency: Batteries, PV and Beyond
LOCATION: 650 California St.
SPEAKERS/LOCATION: TBD



Tom Gilbertson, Chapter Historian
January 2020

***Valentine's Day!.... "Let me call you sweetheart...I'm in love with you!"...
 (1910 -Leo Friedman and Beth SlaterWhitson)***

What a great song for Valentine's Day!...and from our Society's perspective... the "YOU" in that song could, and should be, the American people referring to ASHRAE's Technology...and all that... "Technology" ... has done to improve their lives!...Maybe we should sing that song at our ASHRAE Golden Gate meeting?

Yes!...we have made "comfort heating cooling" so efficient...we have cut the energy required to perform this function as much as 80% over the years...and that makes it affordable...while we enjoy those comforts in our lives.

But ASHRAE.. "The American Society of Heating Refrigerating and Airconditioning Engineers" ...does so much more than just... comfort heating cooling"...!

ASHRAE Technology is where we learn, apply, and hone, our skills in the basic activities that enable our economy!...and that is not just "comfort heating & cooling".

Where, but in our employment-based economy do we learn the skills that are required that allow virtually everything to flourish...except but with ASHRAE?

That may sound a little grandiose... but it is true!...Try imagining a day in your life when someone who came before you had not applied what was learned, and taught ...(Learning and Teaching are two very different items)...from our ASHRAE Handbook Series.

Let's see...you probably woke up from under cotton sheets that could not have been made, economically...without the application of humidity control, fan powered ventilation, and filtration...(Ever been in a textile mill?)

After a hot shower using heated, clean, domestic water... How do you suppose that water was heated...and made clean and safe to begin with? Ever consider how you received the energy that made that natural gas or electric-

ity arrive at you home?... (Ever been in a water treatment plant?...a refinery?... a power plant?)

You enjoyed a breakfast using fresh, refrigerated fruits and juices...and perhaps milk, and toasted-grains...or maybe even meat...(make that bacon) ...that had been REFRIGERATED?... (Ever been in a cereal plant?...a meat-packing plant?...a packing shed?...a creamery?...a production-bakery?...a canning plant?...or realized how the products that require REFRIGERATION...were able to be transported to you?)

You have not yet left your house to drive to work and you have used endless applications of ASHRAE Technology!... (Ever been in an automotive assembly plant?)...How about the concrete and asphalt roads that we drive on?... (Ever been to a cement plant?...or operated an asphalt plant?... or been in a steel mill?)

We have not had time to avail yourselves of the beverages that are available...(Ever worked in a brewery?... a winery?...or...a distillery?)

Every location that is mentioned is simply "filled" with the "tools" of our technology. That have been applied...to make something work.

It seems every item we touch has availed itself of the ASHRAE-Technology that depends upon, fans, pumps, heat transfer surfaces, insulation, ventilation, refrigeration, filtration, automatic controls, piping, and sheet

metal...to be available...and exist!....(Just where did you think the skills of using all that "stuff" are learned?)

There is a lot more to ASHRAE than just chasing British Thermal Units (btu's) using an App on your I-phone...or a computer.

ASHRAE Technology embodies all the activities that make life comfortable...and those "activities" are more than heavily dependent on being "learned" in our industry... where else?



IN MEMORIAM

Dick Glumac

February 2, 1930 - December 20, 2019

Friends,

Thank you so much for your warm responses and sharing of kind memories following the news of Dick's passing.

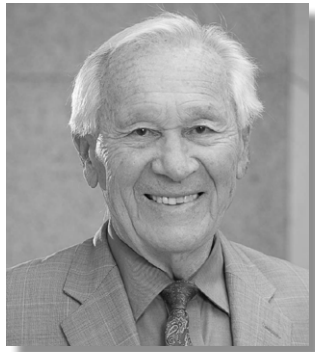
We wanted to say a special thank you to the Golden Gate Chapter of ASHRAE for sharing a wonderful piece on Dick's life and work, which you can find on page five of their most recent newsletter.

As noted in our previous message, we wanted to follow up with details regarding Dick's Celebration of Life.

Thank you again for your kind thoughts and words. Our hearts were warmed to learn Dick meant as much to you all as he did to us.

Steven Straus, President

Glumac



WHEN

February 28, 2020

5:30 pm - 7:30 pm

WHERE

Presidio Officers Club

Moraga Hall

50 Moraga Ave,
San Francisco, CA
94129

RSVP

Joseph Fong

jfong@glumac.com

213-988-6220



Juliana Velez

Chapter Scholarships Go Begging

The Golden Gate Chapter of ASHRAE will distribute as much as \$54,000 in scholarships to our student members. These are independent of the scholarships and grants distributed by the ASHRAE National Society. This breaks down to: Eric T Andresen Memorial Scholarship Fund (twelve scholarships) totaling \$50,000 and Golden Gate Chapter Student Scholarship (up to 3 scholarships) totaling \$4,000. Please encourage any student members you know to apply for the Golden Gate Chapter's scholarships. The deadline for the Chapter scholarships is **February 28, 2020**. Please get the word out that applicants

have a good chance of winning one of these scholarships due to the history of limited numbers of applicants. So far we have just a single applicant for these scholarships.

Applications can be found at: <https://ggashrae.org/Students>

Contact Richard Paillon at: rpaillon@comcast.net with any questions.

STEM VOLUNTEERING OPPORTUNITIES – CLASSROOM VISIT

Do you enjoy working with kids to promote STEM and engineering? The ASHRAE Golden Gate Chapter will be representing ASHRAE in a STEM outreach visit to a local elementary school classroom on 2/20/2020 where the students will learn through hands-on activities. If you are interested in volunteering, please contact Juliana Velez at juliana.velez@hatchdata.com. We are looking to get 3-4 people per time slot - and doing both would be great.

LOCATION: Global Family School, 2035 40th Avenue, Oakland, 94601

Slots available:

- **2/20/2020 at 8:45-9:45 am**
- **2/20/2020 at 9:45-10:40 am**

Additional volunteer opportunities are anticipated for the first week of March.



Sanjil Karki, Membership Promotion Chair

Greetings everyone and welcome back to "ASHRAE Season"! As this is my first term as a Membership Promotion Chair, I am very excited to serve the chapter and enthusiastic about helping it grow. We have a lot of potential to have a great year and I look forward to getting to know you all throughout the process and expand the chapter membership.

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:

MEMBERS

Mr Morgan J Stephens
Mrs Angela Agada
Mr Stephan Ostrowski
Ms Mia B Brondum
Mr Abdul Vahid Thottathil
Mr Peter K Holst PE
Mr Eman C Denchukwu
Mr Jason Gladney
Mr Christian Kohler
Mr Tony Fung

STUDENT MEMBERS

Ms Yasaman Yavaribajestani



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!

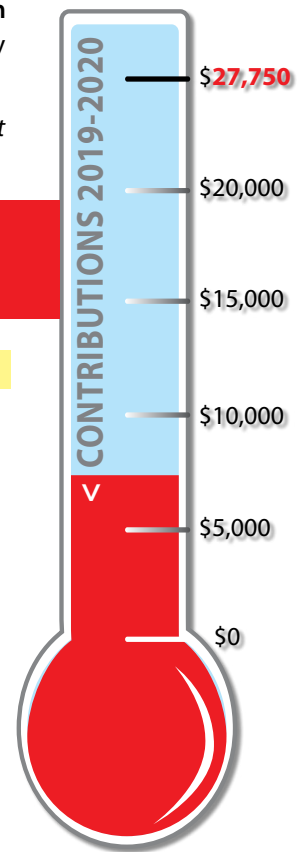
DONORS IN 2019-2020:

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
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John.plecnik@jci.com



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



Dylan Dutt
(510) 571-7049
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Mitch Pinsker, Government Affairs Committee Chair (GAC Chair)

Trump Administration Proposes Changes to NEPA

On January 9, the Trump administration issued a notice of proposed rulemaking (<https://www.federalregister.gov/documents/2020/01/10/2019-28106/update-to-the-regulations-implementing-the-procedural-provisions-of-the-national-environmental>) that would revise regulations for implementing the National Environmental Policy Act (NEPA). NEPA requires Federal agencies to conduct environmental assessments for major Federal actions. The proposed changes by the White House Council on Environmental Quality would no longer require any form of federal environmental review of construction projects that lack substantial government funding. The change would also widen the category of projects that will be exempt from NEPA regulations. The deadline to submit comments on the proposed rule change is March 10, 2020.

California Governor's Budget Proposes \$12 Billion for Climate Issues

On January 10, Governor Gavin Newsom (D) of California unveiled his \$222.2 billion budget proposal (<http://www.ebudget.ca.gov/>) for 2020–2021. The proposed budget would allocate more than \$12 billion in investments to protect the state's environment, address the effects of climate change, and promote resiliency.

California Lags in Meeting 2030 Climate Goals

While California was four years ahead of schedule in meeting its 2020 target to reduce its greenhouse gas emissions to 1990 levels, a new analysis finds that California is behind schedule to meet the target of 40% below 1990 levels by 2030. The new study conducted by Energy Innovation (https://energyinnovation.org/wp-content/uploads/2020/01/Insights-from-the-California-Energy-Policy-Simulator_1.16.20.pdf) recommends six policies for California to meet its target. These include increasing the price for carbon emissions, increasing zero emission energy production, increasing zero emission vehicles, and accelerating building electrification through increasing advanced electric heat pumps in new construction.

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.

LEARNING OPPORTUNITIES

Evening Lecture Series: Scott Shell: California's Race to Decarbonize –Steps to Get Carbon Out of Buildings

March 12, 2020 from 6:00 pm – 7:30 pm

In Person, at PG&E Pacific Energy Center, 851 Howard St., San Francisco, CA 94103

<https://pge.docebosaas.com/learn/course/external/view/classroom/354/EveningLectureSeriesScottShellCaliforniasRacetoDecarbonize%E2%80%93StepsToGetCarbonOutOfBuildings>

As live internet simulcast:

<https://pge.docebosaas.com/learn/course/external/view/webinar/355/EveningLectureSeriesScottShellCaliforniasRacetoDecarbonize%E2%80%93StepsToGetCarbonOutOfBuildings>

Evening Lecture Series: Amber Mahone: The Challenge of Retail Gas in California's Low-Carbon Future

April 9, 2020 from 6:00 pm – 7:30 pm

In Person, at PG&E Pacific Energy Center, 851 Howard St., San Francisco, CA 94103

<https://pge.docebosaas.com/learn/course/external/view/classroom/365/EveningLectureSeriesAmberMahoneTheChallengeofRetailGasInCalifornia%E2%80%93Low-CarbonFuture>

As live internet simulcast:

<https://pge.docebosaas.com/learn/course/external/view/webinar/367/EveningLectureSeriesAmberMahoneTheChallengeofRetailGasInCalifornia%E2%80%93Low-CarbonFuture>

LEARNING OPPORTUNITIES: PEC TRAININGS

A Class for Control Freaks: Getting the Most from your Building Automation System

February 18, 2020, 8:30 am to 4:30 pm at PEC, 851 Howard Street in SF.

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/300/AClassforControlFreaksGettingtheMostfromyourBuildingAutomationSystem>

February 18, 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/302/AClassforControlFreaksGettingtheMostfromyourBuildingAutomationSystem>

This class will explore common control strategies including schedules, setbacks, resets, lockouts, vacancy controllers, demand control ventilation, CO controllers, economizer operation, and the control of variable speed equipment. We will also look at strategies for diagnosing improper operation of Building Automation Systems using graphics from these systems, trend data and data from loggers.

Packaged HVAC: Economizers, Compressors, Analysis

March 10, 2020, 8:30 am to 4:30 pm at PEC, 851 Howard Street in SF.

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/322/PackagedHVACEconomizersCompressorsAnalysis>

March 10, 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/323/PackagedHVACEconomizersCompressorsAnalysis>

Packaged HVAC units represent 2/3 of the cooling in commercial buildings in California but are notorious for an abundance of performance problems. Class begins with an overview of the components of packaged units, noting code compliance requirements and operation optimization opportunities. Special attention will be paid to the expected performance of airside economizers, compressor operation, and control sequencing. In this measurement class, attendees will be exposed to tools and software that can help students understand the operation of packaged units. We will provide training on the programming and data retrieval procedures for a variety of loggers used to assess and monitor efficient operation. Attendees will use the PG&E Pacific Energy Center's Universal Translator data analysis tool to examine package unit performance data.

Energy Center Game Night III

March 19, 2020, 6:30 pm to 8:00 pm, at PEC 851 Howard Street in SF.

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/350/EnergyCenterGameNightIII>

March 19, 2020, 6:30 pm to 8:00 pm, via the Internet as a simulcast

Register here: <https://pge.docebosaas.com/learn/course/external/view/webinar/352/EnergyCenterGameNightIII>

Assemble a group and join us for a night of learning, socializing and fun. This event will have teams of participants working together to answer questions (our questions will be energy-related). Accolades, admiration (and possibly) prizes will be awarded to the team with the highest final score.

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

March 24, 2020, 8:30 am to 4:30 pm at Environmental Innovation Center in San Jose

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/366/PowerEnergyandThermsFundamental-ConceptsMonitoringTechniquesandLoadDisaggregation>

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. Training will include the application of power meters to better understand energy-efficiency, demand response and renewable energy projects.

Commissioning with Data

March 31, 2020, 8:30 am to 4:30 pm at the PEC in San Francisco

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/357/CommissioningwithData>

March 31, 2020, 8:30 am to 4:30 pm online via a simulcast

Register here: <https://pge.docebosaas.com/learn/course/external/view/webinar/353/CommissioningwithData>

Building commissioning is evolving to incorporate the wealth of building performance data now available at most facilities including trend data from energy management systems, interval (smart meter) data from utility meters and weather data from local meteorological sources. This training will also explore data loggers and other recording meters that can also be leveraged for these projects.

Advanced Concepts in Designing and Retrofitting Energy Efficient Data Centers

April 23, 2020, 9:00 am to 5:00 pm at the PG&E Pacific Energy Center, 851 Howard St, San Francisco, CA

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/291/AdvConceptsinDesigningandRetrofittingEnergyEfficientDataCenters>

April 23, 2020, 9:00 am to 5:00 pm online via a simulcast

Register here: <https://pge.docebosaas.com/learn/course/external/view/webinar/252/AdvConceptsinDesigningandRetrofittingEnergyEfficientDataCentersSimulcast>

The 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.

Demand Control Ventilation (DCV) and Variable Speed Fans

May 15, 2020, 9:00 am to 5:00 pm at PG&E Energy Training Center 3136 Boeing Way, Stockton, CA

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/257/DemandControlVentilationDCVand-VariableSpeedFans>

In order to better control commercial buildings during occupied periods and comply with new Title 24 code requirements, this class will provide contractors with a full understanding of demand control ventilation and variable speed fan control strategies. PG&E resource program rebates will also be addressed, as they apply to DCV and variable speed fan control.

RCx101: Identifying and Assessing Common Retro-Cx Opportunities

May 20, 2020, 8:30 am to 4:30 pm at PEC, 851 Howard Street in SF.

Register here: <https://pge.docebosaas.com/learn/course/external/view/classroom/374/RCx101IdentifyingandAssessingCommonRetro-CxOpportunities>

May 20, 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/375/RCx101IdentifyingandAssessingCommonRetro-CxOpportunities>

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. The training emphasizes commissioning scoping and includes a number of hands-on activities. This class is a pre-requisite for the PEC's year-long Existing Building Commissioning Workshop Series.

Centrifugal Pumps: Principles and Opportunities for Hydronic Systems

June 16, 2020 8:30 am to 4:30 pm at PEC, 851 Howard Street in SF.

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

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. Training will include several interactive exercises.

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

June 24, 2020, 8:30 am to 4:30 pm at PEC, 851 Howard Street in SF.

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>

This class will use the "System Concept" as a method to focus on the integrated design and operation of chilled and condenser water systems. We will cover opportunities beyond simply selecting a high efficiency chiller and lowering the condenser water temperature.

JANUARY DINNER MEETING RECAP PHOTOS



Board of Governors

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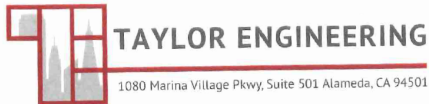
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