

FOG DISPENSER



REASHRAE JOINT DINNER MEETING WITH GOLDEN GATE ASHRAE ON THURSDAY, MARCH 14

MAIN PROGRAM:

**LARGE SCALE HORTICULTURE FACILITIES -
SUSTAINABLE DESIGNS INFORMED BY PLANT
PHYSIOLOGY AND PSYCHROMETRICS**

TOPIC SUMMARY

The state of indoor horticulture designs have gone through two major epochs and the understanding of growing indoors continues to evolve. The integration of plant science into mechanical design decisions will drive the third epoch, with multinational technology corporations devoting significant resources to develop efficient systems that will change the landscape of horticulture worldwide.

Join us as we bring together two experienced mechanical designers, James Falconer and Rob Battiston, and a plant scientist, Dr. Mike Jenkins, to better understand the challenges involved and the current state of the art in overcoming them.

SPEAKERS:

JAMES FALCONER, DR. MICHAEL JENKINS PH.D., and ROB BATTISTON

JAMES FALCONER is a licensed Professional Engineer, Chartered Engineer (UK) and the Mechanical Department Lead at Affiliated Engineers in San Francisco. James has worked on a diverse range of projects in many different geographic locations. On all projects he is involved in, James drives innovation, exploring new and emerging technologies and

continued on next page

**THURSDAY,
MARCH 14**

5:30 pm to 8:30 pm

**FOUR POINTS BY SHERATON
1010 NORTHGATE DRIVE
SAN RAFAEL, CA 94558**

AGENDA:

5:30 pm

Registration and Social Hour

6:30 pm

**Dinner, Announcements
and Introductions**

7:30 pm Main Program

8:30 pm Adjourn

COST:

\$320.00 Chapter meeting
voucher

Chapter Members:

Before 5pm, March 11 \$60

After 5pm, March 11 \$70

Non-Members:

Before 5pm, March 11 \$70

After 5pm, March 11 \$75

Students/Voucher Holder

Free, but please register before
March 11 to help us better plan
for meal and venue seats.

*No Host Bar

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**GOLDEN GATE ASHRAE
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VOLUME L15- NUMBER 6
MARCH 2019 COVER**



how they can be applied to optimize performance of HVAC design. More recently James has applied his technical expertise and innovative design approach to indoor growing applications, from greenhouses for plant research in higher education facilities to a start-up company generating a business model around growing food sources indoors..



MICHAEL JENKINS is the founder and CEO of Rubisco Research and Consulting. He is a gas-exchange physiological ecologist, plant evolutionary biologist, and environmental scientist who earned his PhD at the University of California, Santa Cruz from research he conducted at Los Alamos National Laboratory.

Rubisco is an international group of plant physiological ecologists that focus their expertise on plant environmental interaction

and biochemical responses to abiotic and biotic changes to their growing environment. Their aim is to further the knowledge, understanding, and scholarship of cannabis cultivation. Rubisco designs and optimizes cultivation facilities, and conducts experiments to determine how cannabis responds to different stimuli such as lights, grow media, nutrients, etc. They also investigate how modifications to growing environments such as CO₂, H₂O, temperature, humidity, VPD, etc. affect plant physiology. The group helps clients achieve their goals by specializing in optimization, resource efficiency, and decreasing expenses while reducing risk.



ROB BATTISTON graduated from the agriculturally-focused University of Guelph School of Engineering in 2003. He has spent 13 years in the HVAC industry, with the past 5 years focused on investigating solutions for the horticulture industry. As Co-Founder of the InSpire brand, he shares the vision for sustainable horticulture in all parts of the world through novel environmental controls and indoor growing systems.

EVENT CALENDAR 2019

**FOR MORE INFORMATION
AND DETAILS GO TO**

WWW.GGASHRAE.ORG

► **THURSDAY, MARCH 14** DINNER

LOCATION: Four Point by Sheraton, San Rafael

SPEAKER: James Falconer, Michael Jenkins and Rob Battiston

TOPIC: Topic about Large Scale Horticultural Facilities

► **THURSDAY, APRIL 18** DINNER

LOCATION: PG&E Pacific Energy Center

SPEAKER: TBD

TOPIC: Preparing the Engineers of the future...

► **THURSDAY, MAY 23** DINNER

LOCATION: PGE Pacific Energy Center

SPEAKER: Multiple

TOPIC: Product Show

► **THURSDAY, JUNE 20** DINNER

LOCATION: Scott's

SPEAKER: None

TOPIC: Installation Dinner

**GOLDEN GATE CHAPTER
MICHELLE DIONELLO,
MARCH 2019**

Dear Golden Gate members,

Thank you so much to our members and I2SL members that came out for "Title 24 Prescriptive Requirements for Laboratory and Factory Exhaust Systems." We had an amazing turnout of over 80 attendees! Our co-hosts for the event was the International Institute for Sustainable Laboratories, I2SL, which is newly formed group in Northern California and has been bringing together architects, design engineers, contractors, owners, and other building professionals over the past year. I encourage you to check out their upcoming events if you have an interest and are passionate about safety and sustainable laboratories.



Brad Cochran, CPP, gave us an overview of the requirements on lab exhaust in California and walked us through the code sections. It was interesting to learn how there are areas of improvement as code further develops and how the code allows for a change in volume flow rate based on measured contaminant concentration in the exhaust plenum. If you would like to access the slides, please use this link and you can always find it on previous event page and the link is within the meeting details.

https://ggashrae.starchapter.com/downloads/2019_02_21_i2sl_bay_area_title_24_lab_exhaust_strategies.pdf

This month, we are headed North to join our Redwood Empire (RE) ASHRAE Section. The Redwood Empire Section is part of the Golden Gate Chapter and serves around 100 ASHRAE members in the North Bay. Our joint meeting is one of my favorite meetings because Redwood Empire's scholarship recipients attend this meeting. REASHRAE focuses on handing out scholarships to high school students, who are attending a 2 or 4-year college in engineering or science-related fields. This year, they had twelve (12) applicants and were able to give scholarships to five (5), and the top three (3) recipients will be at our meeting; these young men and women are super inspiring, so I hope you can make it to provide support! To make it even more enticing, the topic this month is on Horticulture and the designs behind large scale facilities. We had a similar event a few years ago that was very popular and this year, Adrian Giovenco, RE President, championed putting together a strong panel, so don't miss this event!

Please be aware that there are updated bylaws from Society, which now include updated name changes and formation of new committees. If you would like to review, please see our bylaws link:

<https://ggashrae.org/Bylaws>

2019 is flying by and I am really looking forward to the rest of our chapter meetings, that are coming up! Hope to see you at our March 14th meeting!

Warm regards,

Michelle Dionello,
Golden Gate ASHRAE President 2018-2019



Tom Gilbertson, Chapter Historian

March 2019! How far have we come?... and what is it that has driven “History”... and in our case ... “ASHRAE-related-History”?

Last month, ASHRAE’s Golden Gate Chapter’s “history” of how there came to be “Energy Regulations” was presented.

Simply stated...

“No Golden Gate ASHRAE Chapter” ...”

“No start to Energy Regulations in the United States, in 1973” ...and if not then...until who knows when?

BUT...what drove that bit of “Golden Gate Chapter-History”?...the answer is... “Money” ...and that is what typically drives the changes...that create “History”.

Let’s examine how “money” drove the issue...and before we start that, recall that the U. S. President Calvin Coolidge pointed out that the “Business of the United States is Business” ...it is that direct.

Owens-Corning wanted to make more money...and not just for the sake of the money...but to be able to afford, and have the things that “money” allowed them to do...better lives for their employees, be able to have jobs”, to create opportunities for their company, to have funds to be able to invest in equipment, and to grow their company so that they could offer more opportunities to their employees, and firm itself.

Having the law of the State of California require insulation...moved Owens-Corning Fiberglas, onward.... “Onward” to what grew into. Title 24!

So, has it been with much (if not all) of the innovation that has driven our ASHRAE-industry-related-innovation? Innovation that grew our industry and provided opportunities for the individuals in our industry.

Willis Carrier saw a need for “centrifugal refrigerating machinery” and sparked growth, and opportunity in our industry...Rueben Trane came up with “fin tube radiation” ...and the funds that the company’s these two fellows fostered, employed thousands of people in productive ways...and gave hope and employment...and in turn “money” to those thousands of people. People who turned those jobs into careers...and opportunities for thousands more.

That is what many of you...ASHRAE Golden Gate Chapter members are doing...giving strength to our economy...making some money...and creating jobs, and opportunities for others.

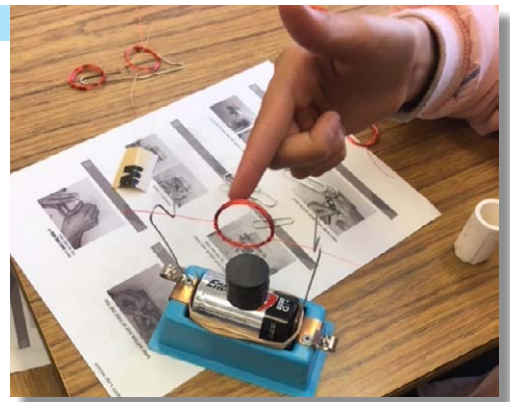
Think about this for a moment...if people are not making money...they really have few reasons to...or even the possibility... of spending money. Our industry is one, that even in a small way, and in small endeavors, there is opportunity to contribute to the economy.... Look at all the little, fragmented businesses in our industry that provide jobs, cash-flow, and ultimately money...so that people have the independence to move forward and a better situation for themselves.

And so much of the activity in our industry is present...because someone wanted, or wants, to make some money...so they perhaps would even themselves, have money to spend...One aspect of this all started because Owens-Corning wanted to make some money.... I am glad that they did.

In a way we are sort of like that mouse that received a cookie...and that started the ball rolling....and in many cases no one gave us the “cookie” ...we made enough money to buy a “small cookie” ... ourselves...and then the chain of events started.... and we created more ASHARE-History... and are doing so right now.

ASHRAE ENGINEER WEEK STEM OUTREACH WITH COMMUNITY RESOURCES FOR SCIENCE

Golden Gate ASHRAE volunteered through the Community Resources for Science (CRS) on February 20th. The CRS program connects volunteers with educators and students to work together to excite children about learning through scientific exploration. The students learned about electromagnetism, magnets, and electric motors; they built motors using paper clips, wire, magnets, rubber bands, and batteries. Thank you volunteers!



VISIT TO SAN FRANCISCO STATE UNIVERSITY STUDENT BRANCH

On February 1, Golden Gate ASHRAE visited the San Francisco State University and delivered presentations in an engineering class and at the ASHRAE student branch meeting. The presentations served in the effort to teach students about Commissioning and to promote ASHRAE at one of Golden Gate Chapter's four-year universities. They provided the students with information on how they could become student members, apply for scholarships & grants through the chapter, and connect with possible full-time & internship positions. Thank you volunteers!

Are you interested in hiring SFSU students and graduates? Feel free to e-mail us at aggcstudents@gmail.com or catch us at the next ASHRAE meeting.

SFSU ENGINEERING CAREER FAIR

The SFSU ASHRAE student branch (ASHRAE) is hosting an Engineering Career Fair on Wednesday, May 1st from 5-9 pm. Please see the below invite from the SFSU ASHRAE branch president.

*You are invited to **ENGINEERING CAREER FAIR**
at San Francisco State University!*

*We welcome you to our university to meet our
amazing students!*

Wednesday, May 1 from 5:00 pm - 9:00 pm

1600 Holloway Avenue – Annex 1, San Francisco

The student branch of American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), is working towards achieving professional development in the energy efficiency and HVACR industries. Our mission is to connect our members to a unique set of resources that sets the stage for a successful career and the opportunity to inspire future generations and have fun. In past years the career fair has been only civil engineering students, but this year will be the first time the career fair is including mechanical and electrical engineering majors.



This is the first all engineering career fair that we are organizing in collaboration with a number of engineering student organizations here on campus and we are excited to have you join us!

With confirmation of your attendance, you will be provided with a 6 ft. table, three chairs, one parking pass, snack and refreshments. Additional tables, chairs and parking passes are available at an additional cost.

Registration/sponsorship fee for the career fair is \$200 and the deadline to register is **Saturday, April 20**. Please contact Victor Osorio for registration details.

We look forward to hosting you at our career fair! If you have any questions, please contact us with the subject "Fair at SFSU"

Victor E. Osorio – President of ASHRAE students at SF State vosoriom@mail.sfsu.edu (415) 254-5288

Women in ASHRAE

We are looking for volunteers with ideas! Interested in assisting with our Women in ASHRAE group? Let us know! Please reach out directly to Isabelle Lavedrine at Isabelle.Lavedrine@cppwind.com or at her cell at 415-373-8576.

UPCOMING EVENTS

GGASHRAE 2019 May Road Ride

Our first cycling event! It's a fun ride, not a race. Come out and join your engineering/cycling community!

- *Save the date: May 18th starting from Crissy field, in view of the GG Bridge 9:00 am*
- *Course options of 50 km and 100 km through beautiful Marin headlands*
- *Let Jim Kelsey know if your company can provide SWAG for our goodie bags or your company name on start/finish banners. Jim's email is kelsey@kw-engineering.com.*

Riders will get:

- Goodie bags
- Snacks before and mid-ride
- SAG support
- BBQ lunch post-ride

Let Jim know if you can volunteer: we'll need hands on for

- Start/Finish support – food, water and BBQ hands
- Midpoint rest stop support
- SAG car
- Tools and mechanical support

Registration available soon!



YEA YOUNG ENGINEERS OF ASHRAE



Jake Barker, YEA Chair

Young Engineers of ASHRAE

The Young engineers of ASHRAE will be holding a joint social hour gathering with the AYP bay area chapter. For those unfamiliar with the AYP they are our fellow young engineers from the P pages on plan sets (plumbing). The AYP chapter will be teaming up with YEA members for a get together at Brewcade on April 18th from 6 to 9 pm. Tickets and more information can be had by contacting your local AYP cquigley@mazzetti.com (Chelsea) or YEA jbarker@airtreatment.com (Jake) chair member. If you're on the mailing list for either group you should receive an Eventbrite email as well. This should be a fun time to network and share experiences with fellow engineers.

**Jeremy Martinez**

Announcements from the Department of Energy

- Bruce J. Walker, Assistant Secretary for the Office of Electricity (OE), announced the Electricity Industry Technology and Practices Innovation Challenge which includes a "\$1 million prize for ideas from industry, academia, and other innovators to make the U.S. bulk power system stronger and more resilient."

<https://www.energy.gov/articles/doe-challenges-america-s-innovators-propose-improvements-bulk-power-system-improve>

You can watch his remarks at the following link: <https://twitter.com/ENERGY/status/1088489514832748545>

The Office of Electricity also released a video featuring Assistant Secretary Walker that focuses on making the nation's electric grid more resilient: <https://www.youtube.com/watch?v=DpSU57QbBMM>

- On January 29, DOE's Office of Energy Efficiency and Renewable Energy's Building Technologies Office announced up to "\$42 million in project selections to support early-stage research and development (R&D) of innovative residential and commercial building technologies for energy efficiency." In total, 46 research teams have been chosen in the following areas:

- **Buildings Energy Efficiency Frontiers & Innovation Technologies (19 selections for \$19.5 million):** <https://www.energy.gov/eere/buildings/articles/departments-energy-announces-building-energy-efficiency-frontiers-0>

- **Solid State Lighting (11 selections for \$11 million):** <https://www.energy.gov/eere/ssl/doe-announces-selections-ssl-rd-funding-opportunity-round-13>

- **Building America (16 selections for \$11.5 million):** <https://www.energy.gov/eere/buildings/articles/departments-energy-invests-115-million-building-america-industry-partnerships>

- DOE's Office of Energy Efficiency and Renewable Energy has finalized a rule that will modify its current policy regarding energy conservation standards and scope of coverage for external power supplies. The change comes after Congress passed the PASS Act of 2017 and the EPS Improvement Act of 2017. "The final rule will save \$2.6 million annually by extending DOE's deadline to issue, and the corresponding compliance date for, a future rule that would determine whether to amend efficiency standards for external power supplies (EPSs)." Learn more about this rule in the Federal Register: <https://www.federalregister.gov/documents/2019/01/29/2019-00257/energy-conservation-program-energy-conservation-standards-for-residential-furnaces-and-commercial>

- EERE's Building Technology Office (BTO) has released its 2018 BTO Peer Review Report and announced the 2019 BTO Peer Review will take place April 15–18, 2019.

2018 BTO Peer Review Report: <https://www.energy.gov/eere/buildings/downloads/2018-building-technologies-office-peer-review-report>

2019 BTO Peer Review: <https://www.energy.gov/eere/buildings/building-technologies-office-2019-peer-review>

Illinois, Michigan and New Mexico Join U.S. Climate Alliance

Illinois Governor JB Pritzker (D) signed an executive order to bring his state into the bipartisan governors' U.S. Climate Alliance, formed in 2017. The Illinois executive order commits the state, already moving toward 100 percent clean and renewable energy, to the principles of the Paris Climate Accord. View more information about the executive order here: https://www2.illinois.gov/Pages/government/execorders/2019_6.aspx

Governor Gretchen Whitmer (D) of Michigan issued her executive order on February 4 in response to the Fourth National Climate Assessment, which was issued in November of 2018 by the federal government. This report indicated that the earth's climate is now changing faster than at any point in the history of modern civilization, primarily as a result of human activities. Michigan's efforts will be directed by the state Department of Environment, Great Lakes, and Energy (EGLE). This agency has just been reorganized under Governor Whitmer in response to the Flint water crisis. See the Michigan executive order here: https://www.michigan.gov/whitmer/0,9309,7-387-90499_90704-488740--,00.html

Governor Michelle Lujan Grisham's (D) order commits New Mexico to a reduction of greenhouse gas emissions of 45 percent below 2005 levels by 2030. The executive order also directs New Mexico to advance policies that bolster clean energy and mitigate climate change including through formation of a Climate Change Task Force that will produce a New Mexico Climate Strategy document by September 15. View more information about the executive order here: https://www.michigan.gov/whitmer/0,9309,7-387-90499_90704-488740--,00.html

As of today, 19 states and Puerto Rico have joined this bipartisan Alliance. It is anticipated that Maine, Nevada and Wisconsin will soon join. View information on the Alliance: <https://www.usclimatealliance.org/>



Brian Chacon, Membership Promotion Chair

April 18 MP Night

Bring a new member to dinner and receive ASHRAE gear!

<https://www.ashrae.org/membership/merchandise>



ASHRAE SPEAKER



ASHRAE TUMBLER



ASHRAE ASSORTED SHIRTS

Welcome New Members!

When renewing your memberships, please pay your local chapter dues AND Society dues. 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:

Matt Staublin
Mr Kurt Richard Heinze
Mr Jackie Liang
Ms Shira Wedemeyer
Noah A Zallen
Mr Jam Jam James M Perey

Mr Wenhan Qiu
Melvin Cheng
Mr John E Taylor
Mr Matthew Adam Charles
Mr Glenn L Mercurio

Cheers, Brian Chacon



Charlie Warren, 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.

We have already had some generous donors. The following individuals have generously supported ASHRAE Research and Golden Gate Chapter for the 2018-19 Campaign.

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

DONORS IN 2018-2019:

ORGANIZATIONS

\$250 to \$999

NAZZARO and ASSOCIATES

ORGANIZATIONS

Up to \$249

Genentech

INDIVIDUALS

Over \$1,000

Glen Friedman, PE

INDIVIDUALS

\$250-\$999

Jim MacDonald
Frank M Lo, PE
Steven Taylor, PE

INDIVIDUALS

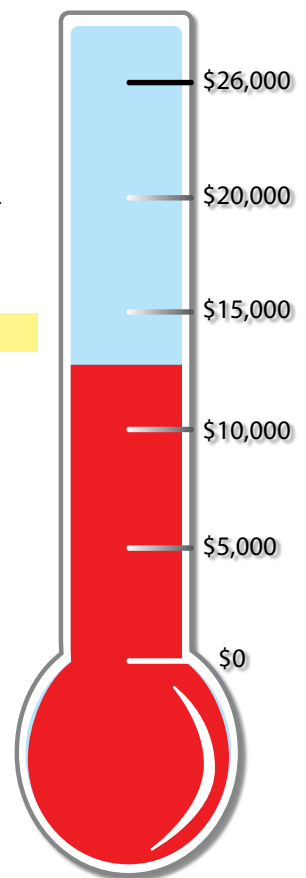
Up to \$249

Lori Ann Arakawa
Dr David H Blum
Bryan Brauer
Brian Chacon
Blaine Daniel Conner
Michelle Dionello
Steve Dobberstein
Alyse Falconer

INDIVIDUALS

Up to \$249

John Hill Gardner III
Steve Greenberg
Kenneth Hill
Carl H Jordan
Hratch A Krikorian
Jeremy Martinez
Ashley Messier
Wasil Popow
Alicia Tan
Charlie Warren
Scott Wayland
Matthew Williamson
Gerald Yaffe



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 Charlie Warren at (415) 742-9350, charlie@convexlabs.io

GOAL:
\$26,000

CONTRIBUTIONS:
\$12,644

ASHRAE Technology Awards

ASHRAE Golden Gate Chapter is now accepting submission for the Technology Awards Program. Please contact me if you are interested in submitting a project (application form attached). Deadline for submission enters is March 22rd, 2019.

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 2019), and one year of energy consumption data should be included. Your project must have been occupied by September 2018 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 Chair: zeid.arnaout@wework.com**

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

Energy Trivia Night

How much do you, your friends, family or professional peers know about energy, sustainability and conservation? Want the opportunity to test your knowledge? Assemble your group and head to the Pacific Energy Center March 7th for a night of energy trivia. Like other trivia nights, teams of participants will need to work together to answer trivia questions; the difference is our questions will be energy-related. Register for a night of fun, music, food, education, and the chance to meet other energy aficionados. Come early to network with Bay Area professional organizations and enjoy our spread of game night appetizers and craft sodas. We'll have cornhole, Jenga, and other games available; get ready to compete! The evening will conclude with prizes awarded to the winning energy trivia team, courtesy of the SF Bay Area chapter of Young Professionals in Energy.

Thursday, March 7, 2019 at the Pacific Energy Center

5:30 pm – 6:00 pm Networking, hors d'oeuvres, and music

Trivia begins at 6:00 pm

Registration: <http://usi.pge.com/event-details?EventID=20354>

Integrated Design Process: Overcoming Design and Management Challenges

This is the first session in a series on how owner/design/construction teams can work in a more integrated manner regardless of delivery method. Integrated Design can result in buildings that have greater value to an owner, improved durability, better environments for occupants, and use less energy and reduce greenhouse gas emissions. This session presents different types and degrees of integrated design and provides examples of projects that successfully worked in an integrated fashion to achieve project goals. Using those projects as case studies, staff from Integral Group will discuss strategies that support a successful integrated design/construction process. The focus of this session is nonresidential and multi-unit residential buildings.

Tuesday, March 12, 2019 online

9:00 am – 11:00 am

Registration: <http://usi.pge.com/event-details?EventID=20538>

Calculating Photometric Lighting Solutions

Photometric lighting calculations such as the lumen method (also called zonal cavity) and point-by-point calculations allow users to determine Illuminance (foot candles) in a space, and determine the appropriate number of luminaires. With explanations about the spatial, reflective and other factors involved in the calculations and step by step hands-on exercises, students will understand the basis of photometric results. This class introduces key features of various software packages that run lighting calculations, and discusses their various benefits and reporting capabilities.

Wednesday, March 13, 2019 online and at the Pacific Energy Center

In-person registration: <http://usi.pge.com/event-details?EventID=20401>

Simulcast registration: <http://usi.pge.com/event-details?EventID=20402>

Energy Audit Skills: Tools, Data Collection Techniques, and Calculations

This training allows attendees to develop several specific energy reduction projects from conception to financial benefit analysis. This one-day program serves as a hands-on follow-up to PG&E's (3-Day) Energy Auditing Techniques for Small and Medium Commercial facilities class. The one-day program focuses on energy and cost calculations, data collection, and monitoring equipment.

Friday, March 15, 2019 at the Pacific Energy Center

8:30 am – 4:30 pm

Registration: <http://usi.pge.com/event-details?EventID=20413>

continued on next page

16th Annual Water Conservation Showcase

Are you eager to learn more about water conservation including how water utilities, product developers, designers, research institutions and leaders in the building industry are addressing our water availability challenges? If these perspectives are of interest and you wish to learn how you can reduce your own water impact, we encourage you to attend our Water Conservation Showcase scheduled for Thursday, March 21st. This event is the largest held at the PG&E Pacific Energy Center each year and will include dozens of exhibitors, twelve educational sessions and hundreds of participants.

Thursday, March 21, 2019 at the Pacific Energy Center

9:00 am – 6:00 pm

The event is free, but please register by going to the following website: <https://www.waterconservationshowcase.com/>

Best Practices for Lighting Audits – 2 Day Class

Before embarking on any lighting modifications or upgrade, it is critical to conduct a comprehensive lighting audit. Audits provide an essential systems-based approach to any lighting upgrade project by avoiding costly, piecemeal projects that may miss energy efficiency opportunities and lock-in inefficient hardware. Comprehensive lighting audits deliver better results for customers by leveraging short-payback efficiency measures to justify a package of capital improvements by quantifying the potential values for the customer.

Tuesday, March 26 – 27, 2019 at the Pacific Energy Center

9:00 am – 5:00 pm each day

Registration: <http://usi.pge.com/event-details?EventID=20448>

Heat Pumps: Residential Applications and Comparison with Solar Energy Systems

The class will cover all aspects of heat pumps including the fundamentals of technology, site analysis, system design, cost factors, and comparing heat pumps with renewable energy systems.

Thursday, March 28, 2019 online and at the Pacific Energy Center

9:00 am – 2:30 pm

In-person registration: <http://usi.pge.com/event-details?EventID=20364>

Simulcast registration: <http://usi.pge.com/event-details?EventID=20375>

Evening Lecture Series: Pathways to 2050 – Decarbonization in a High Renewables Future

Sneller (Snu) Price, Senior Partner at Energy + Environmental Economics (E3), will discuss his firm's work for the California Energy Commission, examining scenarios to achieve California's ambitious climate goals. Snu will outline key strategies that must be launched and succeed to achieve the 2030 and 2050 goals. Specific strategies likely to be employed in buildings to meet these goals will also be discussed.

Thursday, April 4, 2019 at the Pacific Energy Center

5:30 pm – 6:00 pm Networking and hors d'oeuvres

Lecture begins at 6:00 pm

In-person registration: <http://usi.pge.com/event-details?EventID=20357>

Simulcast registration: <http://usi.pge.com/event-details?EventID=20358>

G&B: Commissioning Team Leader

Innovative, award winning design firm with exceptional working environment is currently looking for a talented and motivated individual to join our commissioning team.

SCOPE & RESPONSIBILITIES:

- Manage multiple commissioning projects, including client interface, team coordination, and schedule & budget management.
- Contribute to improving commissioning processes and creating best practices.
- Perform detailed engineering peer reviews of construction documents.
- Perform technical analysis necessary to interpret building operation.
- Communicate to wide range of client stakeholders.
- Work effectively as a team member.
- Develop commissioning plans, reports, pre-functional and functional test procedures.
- Perform jobsite observations and field testing.

REQUIRED QUALIFICATIONS:

- 5+ years of professional working experience, preferably as a Cx or CxA, or in the MEP consulting environment
- Bachelor degree in Engineering or comparable experience.
- Understanding of HVAC and electrical system design and operation.
- Experience in the construction industry.
- Ability to travel for client engagements.
- Ability to climb ladders and safely get around construction sites.
- Reliable transportation.

DESIRED QUALIFICATIONS:

- PE accreditation
- Recognized Building Commissioning Certification
- Knowledge of applicable codes, standards: CEC Title 24, CalGreen, ASHRAE, etc.

We offer competitive compensation, comprehensive benefits package including health insurance, dental, long term disability, vision, cafeteria plan, commuter check and 401k; and more importantly, a place where your contribution is valued and rewarded.

To apply: Please send your resume, cover letter, and salary history to hr@gb-eng.com

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