

FOG DISPENSER



APRIL DINNER MEETING

MAIN PROGRAM:

**GASKETED PLATE & FRAME HEAT EXCHANGERS and
ASHRAE 90.1 & ANSI/AHRI STANDARD 400**



SPEAKER: JESSICA JOLLIFF, ASSISTANT PRODUCT MANAGER/TRAINING COORDINATOR

Jessica Jolliff is an Assistant Product Manager and Training Coordinator at Xylem, Inc. in Buffalo, NY. Jessica has a degree in Chemical Engineering from SUNY Buffalo. She has worked at Xylem for 10 years with experience in multiple heat exchanger types, including Shell & Tube and Gasketed Plate & Frame. As training coordinator, Jessica is responsible for planning, coordinating, and presenting factory training classes for Xylem

Representatives from across the country. She also travels throughout the United States presenting to ASHRAE chapters and other organizations.

continued on next page

WHEN:

**Thursday, April 13,
5:30 pm to 8:30 pm**

WHERE:

**PACIFIC ENERGY CENTER
851 HOWARD STREET
SAN FRANCISCO, CA 94103**

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:

GG ASHRAE Members:

Before 5 pm, April 7 \$40

After 5 pm, April 7 \$50

Non-Members:

Before 5 pm, April 7 \$50

After 5 pm, April 7 \$55

**\$320.00 Chapter meeting
voucher**

Students/Voucher Holder

Free, but please register before
April 7 to help us better plan for
meal and venue seats.

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**GOLDEN GATE ASHRAE
FOG DISPENSER
VOLUME L13- NUMBER 7
APRIL 2017 COVER**

Presentation Summary:

The presentation will elaborate on the current rules of Gasketed Plate & Frame Heat Exchanger selection under ASHRAE 90.1 and ANSI/AHRI Standard 400. We'll start by describing the basic design principles of a Gasketed Plate & Frame Heat Exchanger and their selection as ASHRAE 90.1 Waterside Economizer in an HVAC application. We'll then discuss the AHRI Liquid to Liquid Certification Program, which Xylem Corporation is a member of, and how it applies to selecting Gasketed Plate & Frame Heat Exchangers. The AHRI "Certify-All" provision will be defined and reviewed with a focus on the importance of compliance. Finally, examples will be provided on how to specify the Gasketed Plate & Frame Heat Exchanger in consideration of AHRI in a specification.

**EVENT
CALENDAR
2017**

SAVE THE DATE!



**FOR MORE
INFORMATION
AND DETAILS
GO TO**

WWW.GGASHRAE.ORG

► **THURSDAY, APRIL 13, 2017** **DINNER**

LOCATION: PGE ENERGY CENTER

SPEAKER: Jessica Joliff

TOPIC: Gasketed Plate & Frame Heat Exchangers and
ASHRAE 90.1 & ANSI/AHRI Standard 400

► **THURSDAY, MAY 11, 2017** **DINNER PRODUCT SHOW**

LOCATION: PGE ENERGY CENTER

TOPIC: Product Show

► **THURSDAY, JUNE 08, 2017** **LAST DINNER**

LOCATION: SCOTT'S

SPEAKER: Charles Eley

TOPIC: Net Zero

Drought, What Drought?

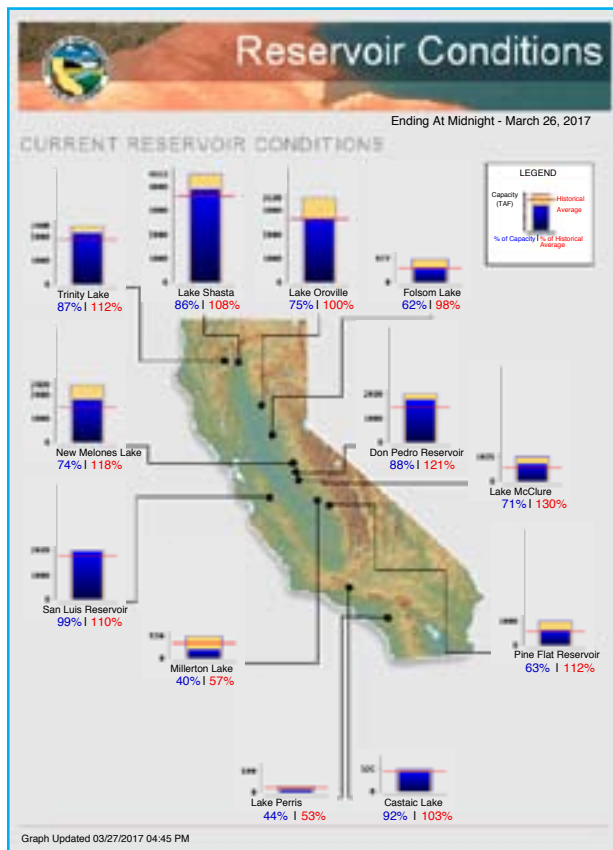
Welcome Golden Gate ASHRAE members and friends,

As I write this we're just a week into Spring and still more rain is forecasted for Northern California in what has been a record setting rainfall year in some regions of California. While just last week the USGBCNCC/PG&E/EBMUD/AIASF helped put together the 2017 Water Conservation Showcase in San Francisco to help further awareness and action towards further water conservation.

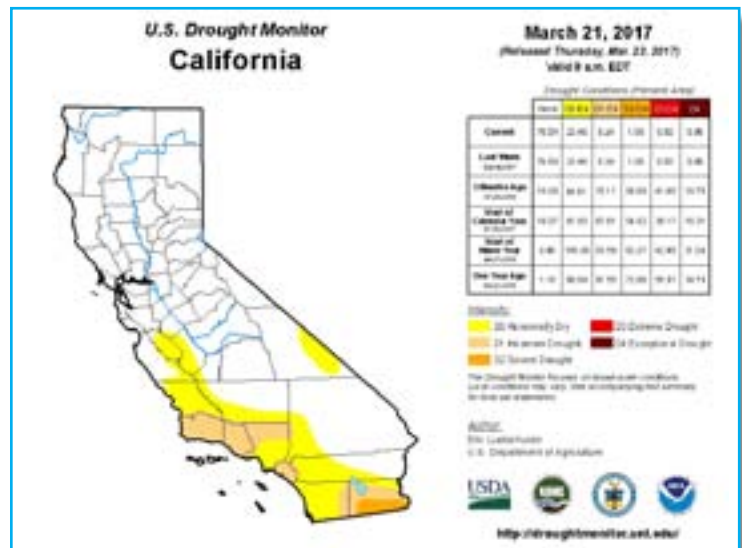
As shown in **Figure 1** most of the major reservoirs in California have recovered from the past 5+ years of drought with most already above their average annual capacity. As of last week, we also had snowpack levels at 160% of normal for the state. So, are we out of the woods regarding the drought? While this question is likely to elicit a wide range of opinions, most experts had already predicted greater fluctuations in both rainfall and snowpack in California's future and one government site shows that half to a third of California is still considered to be in a drought, mostly in Southern California (see **Figure 2**).

I have done my own research, I have read the opinions from many state and national experts on the subject, and this engineer for one is not backing off on his efforts to conserve water at home or in my design practices at work; also, my dream of someday owning a net zero energy stationary lap pool will have to remain a dream for now.

Tyler Bradshaw, President 2016-2017
ASHRAE Golden Gate Chapter



◀ **Figure 1:** Courtesy of California Department of Water Resources: <http://cdec.water.ca.gov/cdecapp/resapp/get-ResGraphsMain.action>



▲ **Figure 2:** Courtesy of United States Drought Monitor: <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA>



April 2017...with emphasis on Health Care!

Medical Facility Design...as seen through ASHRAE...and our Golden Gate Chapter!

Tom Gilbertson, Chapter Historian

Golden Gate Chapter Members...and ASHRAE itself, deal heavily in the medical industry....ASHRAE has a history... "in"...and was "present" as hospitals, medical clinics, and all of the associated medical research facilities have been honed, and developed over the years...Consider how our "Fog-covered"...Golden Gate Area... where ASHRAE...nee AHSVE-members have assisted in the design of the UC Medical Center...SF Mission Bay...SF City Hospital...Kaiser Hospitals...and

Stanford Hospital(s)...Marine Memorial Hospital...Letterman Hospital...Oak Knolls Hospital...John Muir... to name a few...If you think about... it we have an historical advantage in that we have many facilities...from which to at least deliver part of our health care.

Within our Chapter's area, many of the great medical facilities exist and were built with Golden Gate members'"advise and consent"...our area is like almost no other in the World...

GG-Chapter member ***Shlomo Rosenfeld***.... ..accomplished in all aspects of hospital and medical facility design...He is the example of our Chapter's participation, and leadership in this area....After graduation from The Israel Institute of Technology in Haifa, Israel...Shlomo's career includes being Corporate Chief of Design for the 500-person engineering firm of Syska & Hennessy ...and encounters with more hospitals that I can name!...

Most importantly Shlomo was serving the State of California for 10-years on the State's Hospital Building Safety Board...which oversees the Office of Statewide Health Planning and Development...***OSHPD***....and he was the Chairman of the board's Mechanical and Electrical Committee.



Shlomo Rosenfeld



All of you Golden Gate ASHRAE Members know OSHPD....don't you?....Just in case you don't know...this is the group that checks your design of a proposed medical facility!....(As in"Get it right!...Or....do it over ...until it is!")

Shlomo's "work-resume" includes over 175 projects from numerous Kaiser Hospitals, San Francisco Medical Center...to the Abu Dhabi Hospital in the United Arab Republic (UAE)...Shlomo's "award-resume" includes over 50 citations for engineering excellence....Yep!...just another typical Golden Gate Chapter member with a history of doing good!

Perhaps you may not know the significance of OSHPD?...Did you realize the fact that the State of California is the only State that has an actual Hospital Design Code?...California has specific design standards, in code-form for hospitals, skilled nursing facilities, and clinics....and Shlomo was the Chairman of the Board that oversaw their work in its formative years.

Yes!...it was a Golden Gate Chapter-member,...Shlomo!... that knew how to do it right!!



Alyse Falconer, YEA Chair

YEA Leadership Weekend!

This year, Ken Takahashi from Integral Group attended the YEA Leadership weekend and shares his experience.

This year, I had the privilege of being sponsored by the Golden Gate chapter to attend the YEA Leadership Weekend in Denver. This is a weekend long workshop which YEA members from all over the US come and learn about leadership and how we can be more involved with ASHRAE. I first heard about the YEA Leadership Weekend from Alyse and the way she talked about how much fun she had when she attend immediately sparked my interests. The event being in Denver this year (my hometown) was icing on the cake.

The lecture given by Ralph Kison was the most influential weekends of my life. The lecture covered all sorts of aspects about what a leader is, what sort of leader we can be, where our passion lies, and so much more. Ralph, who works mainly with engineers and architects, really understood where many of us stand within our workplaces. Ralph's perspective on leadership was not for us to become that powerful, charismatic leader that we may imagine as an "ideal" leader, but to use our strength and understand our personalities to become our own style of leader.

"Leadership is influence – Nothing more, nothing less"

– John C. Maxwell

The YEA Leadership Weekend changed the way I approached work and personal relationships. For me as an introvert, or "Implementer" as Ralph called us, always had trouble fitting myself into group conversations and just let the discussions flow around me. I was never the type of person take control of a conversation and trying to force myself to speak up was very stressful for me. I feel like I was a pretty self-aware before the workshop but Ralph opened my eyes to things about my personality that I didn't know before. I understood how I can utilize my behavior and personality and I feel much more comfortable about being myself. Now conversations with other people just feels more natural and not so forceful anymore.

I was never the type of person take control of a conversation and trying to force myself to speak up was very stressful for me. I feel like I was a pretty self-aware before the workshop but Ralph opened my eyes to things about my personality that I didn't know before. I understood how I can utilize my behavior and personality and I feel much more comfortable about being myself. Now conversations with other people just feels more natural and not so forceful anymore.

I believe that the YEA Leadership Weekend is only the beginning in becoming a great leader. Ralph just gently pushed our backs in the right direction and it is now my responsibility to pave my own path. But without his guidance, I may have been walking around in circles for years before I even realize that I wasn't making any progress. For anyone eligible to attend this workshop, I would HIGHLY recommend taking the opportunity. It will be the most valuable career choice you can possibly make.



ANNOUNCEMENT

In Memoriam

Peter Tidmarsh

The Chapter notes with sadness the passing of Peter Tidmarsh, on February 17, 2017 at the age of 86. Peter was a long time member of our industry and his career with The Johnson Service Company, Powers Regulator, and his own representative firm spanned over 60 years. We remember Peter as a fine friend and gentleman.

Avril Levasseur and Sergio Tarantino share their experiences at the 2017 ASHRAE Winter Conference in Las Vegas.

Avril Levasseur



I am a graduate student at Stanford University, and this year I was lucky enough to be awarded a Golden Gate ASHRAE Chapter conference travel grant to attend the Winter Conference in Las Vegas.

Attending the conference was a fantastic experience. I have just begun my master's degree in Sustainable Design and Construction

at Stanford, after having completed an undergraduate degree in civil engineering. Coming from a less mechanical background than most of my peers, I have a lot of catching up to do before I can achieve my ultimate career goal of designing net-zero energy buildings. Attending the conference allowed me to dig deeper into new and exciting topics in building system design.

I was able to join workshops and seminars covering a broad range of topics such as urban-scale energy modeling, sewage water heat pump systems, solar effectiveness, and building automation systems. These sessions were of great value to me as I continue to grow and develop my knowledge and skills as an engineer. I also had the opportunity to sit in on a technical session for Building Energy Performance, which gave me a glimpse into how ASHRAE operates and makes decisions on a larger scale.

Furthermore, I was very interested by the Food Cold Chain for Developing Countries seminar, as I believe it is very important for engineers to be global citizens, concerned not only with local issues, but with the challenges faced by others around the world.

The conference also gave me the opportunity to meet like-minded students and engineers from around the country. I believe that the connections I made during my time in Las Vegas will last for the duration of my career. I am extremely grateful to have had to opportunity to attend and truly appreciate the support from the Golden Gate ASHRAE Chapter.

Thank you!

Sergio Tarantino



My journey in the ASHRAE world started few years ago on a student membership. Interested in building energy modeling to support sustainable architectural design, I found in the ASHRAE community the mentorship I was hunger of. Guidelines and guidance, standards and alternatives, models and systems, tools and case studies. Members were

eager to address my questions at any time.

I'm now doing my PhD in Civil Engineering and ASHRAE keeps supporting my personal and professional growth. Great surprise when I received the email with the invitation for "ASHRAE winter conference" that my advisor shared on our students group mailing list. Working on performance based contracting and building energy model calibration, "perfect timing!" was my first thought. I had to read the email twice to notice the "LasVegas" string after the "winter conference" part: it was really the "perfect timing!"

As a researcher I spend the most part of my typical day computing and elaborating data. The possibility to take a break from the always-too-strong relationship with the laptop, to enjoy the warm weather of the Nevada desert, and at the same time to acquire prime quality knowledge from a broad spectrum of expert, to attend Technical Committee, to enlarge the professional network. Definitely, a unique opportunity.

Although, here it comes the well-known obstacle for a student. How to get the funding to participate in this conference? ASHRAE has an application process that allows students to access to the Golden Gate ASHRAE travel grants. The application process is easy to follow and well outlined and if any clarification needed, Anna Osborne is incredible in providing the applicants with prompt support. Same support I had from Anna during my staying in Las Vegas. Request for information, logistics, tutoring, she is always ready to guide the students.

Thanks to the travel grants, I was able to attend the conference. Four days of fruitful conversation, exclusive presentations, active participation in technical committee. The whole ASHRAE community is like a big family, everybody is interested in knowing about your background and your interests, as well as supporting your goals. I had the chance to connect with several members, share my research topic and get insights that otherwise I could only get through weeks of research on the internet.

I highly recommend the experience of attending the ASHRAE conference to any student. It will absolutely shape your path!



Brian Chacon, Membership Promotion Chair

Membership Promotion Night April 13th !!

Get a free meal! In an effort to recruit new members to ASHRAE, if you bring a non-member to the dinner meeting at the Pacific Energy Center (851 Howard SF) on April 13th at 5:30 p.m. and they join ASHRAE, your next dinner meeting is free! Please make an effort to reach out to a potential new member and offer to bring them to a meeting.

Have you been a member for 12 years? Upgrade from "Associate" to "Member"!

If you are a member with 12 years of active membership, update your profile and you will be upgraded from associate to member. Attending a technical school, college or university, and/ or professional registration all count towards your upgrade eligibility. You must update your membership bio online and send an email to membership@ashrae.org requesting advancement. Please copy me on the email Brian.chacon@trane.com.

Student SmartStart Program

I want to remind everyone about the great opportunity offered through the SmartStart student program. For \$51 year 1, \$77 year 2, and \$102 year 3, individuals transitioning from student to professional life can take advantage of a reduced ASHRAE membership. If you are interested, contact me personally and we can discuss success stories and different ways students and young members can take advantage of this opportunity!

<https://www.ashrae.org/membership--conferences/student-zone/membership-and-meetings/ashraes-smartstart-program>

Welcome New Members!

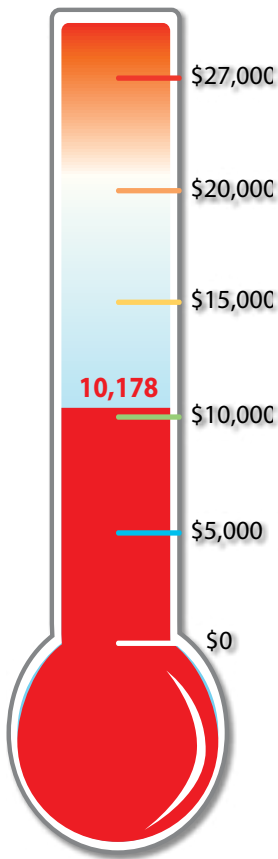
We are off to another successful year of retaining our current members and recruiting new ones. When renewing your memberships, please pay your local chapter dues AND Society dues. Reminder: Golden Gate (Local) and Society dues both need to be paid. Yes, those are two separate transactions. Throughout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

*Miss Eva Ma
Thomas Kelly
Mr Nicholas John Peterson
Mr Paul Lafita
Ms Miranda S Myers*

*Mr Stewart Farley
Mr William R Brown PE
Brian J Hageman
Mr FARSHAD ARFAA*

Jason Lesser, Research Promotion Chair

What is the RP 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.

Thanks to all who donated last year we raised \$24,679 and just missed our goal of \$27,00. This year we plan to exceed our goal of \$27,000 and we have already had some generous donors. The Following individuals and companies have generously supported ASHRAE Research and Golden Gate Chapter for 2016-17 Campaign.

With the help of following Donors and Golden Gate Chapter Volunteers, we were able to raise the most amount of Research Funds over the last 10-years. Golden Gate Chapter received Challenge RP award at Chapter Regional Conference.

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

Donors in 2016-2017:

ORGANIZATIONS
\$1000 and Up
Marina Mechanical

INDIVIDUALS
\$2000 and Up
Dr Edward Arens

1000 to \$1999
Mr Glenn Friedman, PE
Thomas A Gilbertson

INDIVIDUALS
\$250 to \$999
R F MacDonald Co. –
Hayward
David A Nazzaro
Conservation Mechanical
Systems

Up to \$249
Mark H Walton
Foo On Eng

Zberri A Alvi
Elizabeth Foster Courtney
Robert A Davis
William H Martin
Fred S Bauman
Dr Kenneth C Hill
Jack A Palmer
Erik P Kolderup
Corydon C Palmer
Brent D Martin
Alyse M Falconer
Tyler Bradshaw

Jeremy Augustin Martinez
Brian Michael Chacon
Jason Lesser
Michelle V Dionello
Nikola Kravik
Wasil Popow
Robert A Davis
Kevin F Dowling
Joo Young Kim
Eugene A McCabe
James G Nemechek
Robert A Davis

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 Jason Lesser at (510) 455-0062, jlesser@ami-hvac.com

GOAL:
\$27,000
CONTRIBUTIONS:
\$10,178

ATI Architects and Engineers: Licensed Mechanical Engineer

ATI Architects and Engineers is looking to expand our Pleasanton office team with a Licensed Mechanical Engineer who has experience in the design of HVAC systems and automatic temperature controls for a broad range of systems.

DESIRED SKILLS:

- HVAC/Mechanical design including: T24, energy modeling and computerized load calculations, evaluation of appropriate mechanical systems, equipment selection, using AutoCAD to design equipment, duct, and piping layouts, design of HVAC controls
- Experience with New Construction, Renovations, and Retrofits
- Ability to collaborate and coordinate with clients, architects and other engineers

CONTACT INFORMATION:

Submit resume and cover letter to: careers@atiae.com

Carbon Lighthouse: Field Technician(s)/ Energy Solutions Team

Carbon Lighthouse is looking for driven and smart Field Technicians to join our Energy Solutions Team, the group responsible for developing and implementing our clean energy service in buildings. The ideal candidate has professional installation, commissioning/testing, controls, or other field work experience and strong mechanical aptitude, and is excited by complex, open-ended, and real world engineering challenges. This person genuinely enjoys working on collaborative teams, and wants to be involved in large scale challenges that require long term persistence. This candidate enjoys real world field implementation work and project coordination, and thinks beyond existing processes in search of better methods.

CONTACT INFORMATION: careers@carbonlighthouse.com

Carbon Lighthouse: Engineer(s)/ Energy Solutions Team (Early Career & Senior)

Carbon Lighthouse is looking for driven and smart Engineers to join our Energy Solutions Team, the group responsible for developing and implementing our clean energy service in buildings. The ideal candidate has professional or graduate school experience in engineering (or technically equivalent) positions, and is excited by complex and open-ended engineering challenges. This person genuinely enjoys working on collaborative teams, and wants to be involved in large scale challenges that require long term persistence. While the role involves significant computational modeling work, this candidate also loves connecting models to the real world.

CONTACT INFORMATION: careers@carbonlighthouse.com

Carbon Lighthouse: Project Manager(s) | Energy Solutions Team

Carbon Lighthouse is looking for driven and smart Project Managers to join our Energy Solutions Team, the group responsible for developing and implementing our clean energy service in buildings. The ideal candidate has professional experience in engineering (or technically equivalent) positions, and is excited by complex, open-ended, and real world engineering challenges. This person genuinely enjoys working on collaborative teams, and wants to be involved in large scale challenges that require long term persistence. While there is a lot of real world feasibility and field implementation work, this candidate also loves understanding the thermodynamics theory and energy modeling behind the solutions.

CONTACT INFORMATION: careers@carbonlighthouse.com

2017 Technology Awards

Thank you for all your wonderful Technology Award applications! We are currently in the process of judging and will announce winners soon.

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

- Alex Fung, CTTC Co-Chair: AFung@integralgroup.com
- Zeid Arnaout, CTTC Co-Chair: ZArnaout@integralgoup.com

LEARNING OPPORTUNITIES

Symposium on Resilient Design for Buildings, Communities and Cities: May 3, 2017

Wednesday, May 3, 1 pm to 4:30 pm

PG&E Pacific Energy Center, 851 Howard St., San Francisco (also by live webcast)

Dangers from climate change, more frequent extreme weather events and resulting power outages represent growing concerns for government agencies, building owners and design professionals. This session will explore how stakeholders are addressing resilience at multiple scales, assessing risks and responding through design strategies the scale of individual buildings, and at the city scale through infrastructure and waterfront design. The session will also present the inherent synergies between resiliency and sustainability.

Considering the scale of individual buildings, speakers will discuss approaches such as passive survivability, which allows buildings to remain usable in “unplugged mode” primarily through passive means (which enable efficient energy performance under normal operations). Speakers will also present new LEED pilot credits for resilient design. At the scale of urban and community design, speakers will examine resiliency concerns for infrastructure, fluvial processes and waterfronts, including policy concerns and design challenges underway in many cities around North America. The program will allow time for discussion and audience participation.

This event webpage describes the event, lists confirmed speakers (with a few more to be added) and registration links:

<http://cbe.berkeley.edu/centerline/symposium-on-resilient-design-for-buildings-communities-and-cities/>



Upcoming free trainings on HVAC systems and related topics offered by PG&E

Upcoming free trainings on HVAC systems and related topics offered by PG&E

For more classes on energy-efficiency, renewable energy systems and demand response, go to <http://www.pge.com/energyclasses>. To find just HVAC classes, select "HVAC" as the primary topic at the web search page.

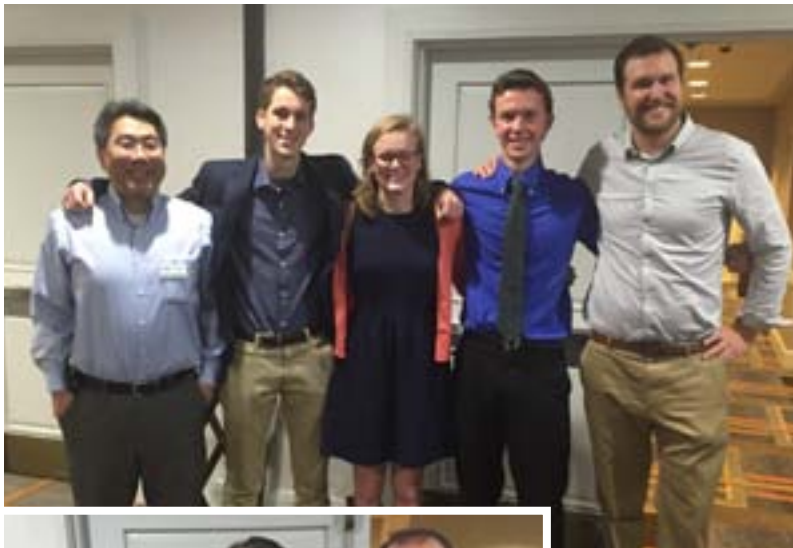
- **Energy Storage Systems**
Mar 30, 2017, 9:00 AM to 3:00 PM at PEC, 851 Howard Street in SF or Internet
- **Collaborative Partnering – How Teams Use this Structured Process to Manage Risk, Resolve Issues and Achieve Exceptional Outcomes on Projects**
Mar 31, 2017, 9:00 AM to 12:30 PM at AIA SF, 130 Sutter St #600 in SF
- **Energy Plus for Energy Modeling Practitioners (2 Day Class)**
Apr 4-5, 2017, at PEC, 851 Howard Street in SF
- **Pumps: Design, Performance, and Commissioning Issues**
Apr 4, 2017, 8:30 AM to 4:30 PM at PEC, 851 Howard Street in SF or Internet
- **Title 24 Part 6 Essentials - Nonresidential Standards for Energy Consultants**
Apr 5, 2017, 8:30 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Solar Water Heating Advanced Commercial Systems**
Apr 5, 2017, 9:00 AM to 4:00 PM at PEC, 851 Howard Street in SF
- **OpenStudio Launch Pad**
Apr 6, 2017, 8:00 AM to 5:00 PM at PEC, 851 Howard Street in SF
- **Title 24 Part 6 Essentials - Standards and Technology for Retail Lighting**
Apr 6, 2017, 8:30 AM to 4:00 PM at PEC, 851 Howard Street in SF
- **Innovators Evening Lecture Series - Larry Strain - Buildings and the Time Value of Carbon**
Apr 6, 2017, 6:00 PM to 8:00 PM at PEC, 851 Howard Street in SF or Internet
- **Advanced OpenStudio**
Apr 7, 2017, 8:00 AM to 5:00 PM at PEC, 851 Howard Street in SF
- **California Building Energy Code Compliance (CBECC-COM) Software for the 2016 Title 24 Energy Code – Introduction and Simplified Geometry**
Apr 10, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Commissioning Residential Building Enclosures**
Apr 11, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF or Internet
- **Envelope Infiltration Reduction by Design and Execution to Meet ZNE Specifications**
Apr 12, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Energy Efficiency for Data Centers: New Construction and Retrofit**
Apr 18, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF or Internet
- **Heat Pumps: Residential Applications and Comparison with Solar Energy Systems**
Apr 19, 2017, 9:00 AM to 2:30 PM at PEC, 851 Howard Street in SF
- **How to Design and Build High Performance Walls and Roofs**
Apr 20, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF

continued on next page

Upcoming free trainings on HVAC systems and related topics offered by PG&E *continued*

- **Window Selection for New and Existing Homes**
Apr 21, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Building Envelope and Duct Testing - MI-BEST Series #1**
- **Air Flow Measures and Static Pressure - MI-BEST Series #2**
- **Refrigerant Charge Verification - MI-BEST Series #3**
- **Building Pressures and Ventilation Verification - MI-BEST Series #4**
- **Thermal By-Pass, Quality Insulation Installation, Advanced Building Envelope - MI-BEST Series #5**
Apr 24-28, 2017, 9:00 AM to 5:00 PM at Stockton - Energy Training Center, in Stockton
Students are encouraged to stay for the entire 5 days, but may sign up for individual days depending on the agenda.
- **Chilled and Condenser Water Systems: Design, Performance, and Commissioning Issues**
May 2, 2017, 8:30 AM to 4:30 PM at PEC, 851 Howard Street in SF or Internet
- **Resilient Design for Buildings, Cities and Regions**
May 3, 2017, 1:00 PM to 4:00 PM at PEC, 851 Howard Street in SF or Internet
- **Commercial PV Systems: Key Concepts and Best Practices in Design, Commissioning and Maintenance**
May 10, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Advanced Framing for Energy and Resource Efficiency**
May 12, 2017, 8:00 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Water Audit Basics for Small to Medium Size Businesses**
May 15, 2017, 8:30 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Plug Load Workshop: The measurement and management of miscellaneous loads**
May 18, 2017, 8:30 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **EnergyPro 7 Software for 2016 Title 24 Nonresidential Compliance – Introduction**
May 23, 2017, 8:30 AM to 12:00 PM at PEC, 851 Howard Street in SF
- **EnergyPro 7 Software for 2016 Title 24 Nonresidential Compliance – Intermediate/Advanced**
May 23, 2017, 1:00 PM to 4:30 PM at PEC, 851 Howard Street in SF
- **EnergyPro 7 Software for 2016 Title 24 Residential Compliance – Introduction**
May 24, 2017, 8:30 AM to 12:00 PM at PEC, 851 Howard Street in SF
- **EnergyPro 7 Software for 2016 Title 24 Residential Compliance – Intermediate/Advanced**
May 24, 2017, 1:00 PM to 4:30 PM at PEC, 851 Howard Street in SF
- **Title 24 Part 6 Essentials - Standards and Technology for Office Lighting**
May 25, 2017, 8:30 AM to 4:30 PM at PEC, 851 Howard Street in SF
- **Energy Efficient Design and Retrofit of Laboratory Buildings**
May 30, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF or Internet
- **Optimizing Residential HVAC System Performance**
May 31, 2017, 9:00 AM to 4:30 PM at PEC, 851 Howard Street in SF

MARCH JOINT DINNER MEETING RECAP



MARCH JOINT DINNER MEETING RECAP



Board of Governors

PRESIDENT

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SECRETARY

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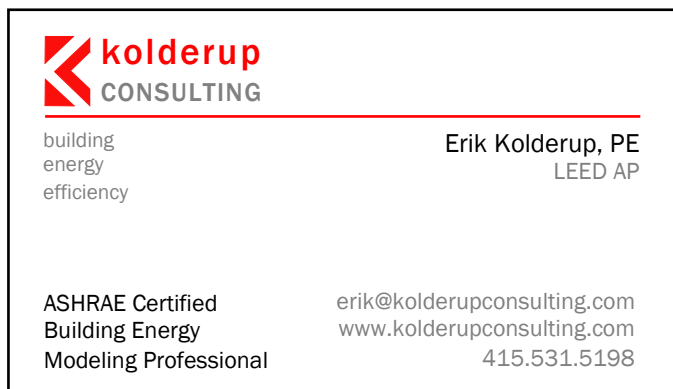
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