

FOG DISPENSER



APRIL 2012 DINNER MEETING

MAIN PROGRAM: STRATIFIED AIR VENTILATION SYSTEMS

SPEAKER:
KISHOR KHANKARI, PH. D.



Dr. Kishor Khankari, Ph. D is an Associate Partner at Syska Hennessy Group. As a specialist in Computational Fluid Dynamics (CFD), he works closely with his clients to provide optimized HVAC solutions using CFD techniques. Kishor has several years of experience in providing consulting services that have resulted in the development of solutions to a wide variety of engineering problems involving fluid flow, heat transfer, mass transfer, and other similar engineering processes. Dr. Khankari has developed a patented technology of a wind band design of exhaust fan assembly systems. He has developed several easy-to-use analytical software tools, which are regularly used by design engineers in a variety of companies including those in the critical facility and automotive industries.

A noted expert in his field, he has a Ph.D. in CFD from the University of Minnesota and has been regularly published in several technical journals and trade magazines. Dr. Khankari is an eloquent speaker and has made presentations on topics related to design and optimization of HVAC systems at various technical conferences and professional meetings.

Dr. Kishor Khankari is an active member of ASHRAE both at local and national level. He is a member and Secretary of Board of Governors of Detroit ASHRAE Chapter. He is serving as a voting member and Chair of Research subcommittee of ASHRAE Technical Committee TC9.11 Clean Spaces.

continued on next page

**THURSDAY, APRIL 12, 2012
(5:30 PM TO 8:45 PM)**

**SCOTTS SEAFOOD AT JACK
LONDON SQUARE, OAKLAND**

AGENDA:

5:30 pm
Registration and
Social Hour
6:30 pm
Dinner with
announcements
and introductions
7:00 pm
Break
7:10 pm
Main Program
8:45 pm
Adjourn

COST:

**GG ASHRAE members,
but please register**

Before 3pm, Fri. 4/6 \$40.
After 3pm, Fri. 4/6 \$50.

**Non-Members,
but please register**

Before 3pm, Fri. 4/6 \$50.
After 3pm, Fri. 4/6 \$55

Students/Voucher Holder
Free, but please register

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GOLDEN GATE ASHRAE
FOG DISPENSER
VOLUME L - NUMBER 4
APRIL 2012 COVER

2012 EVENT CALENDAR:**►THURSDAY, APRIL 12, TOUR 3:00PM – 4:30 PM**

LOCATION: Kaiser Oakland Hospital, Oakland CA

TOPIC: *Tour of Mechanical Systems*

SPEAKERS:

LEAD - Mark Redmond, PE, Principal, Ted Jacob
Engineering GroupASSISTING - Cheryl Nuttall, PE, Project Engineer,
Ted Jacob Engineering Group**►THURSDAY, APRIL 12 DINNER MEETING****5:30 PM – 9:00 PM**LOCATION: Scott's Seafood at
Jack London Square, OaklandTOPIC: *Stratified Air Ventilation Systems*

SPEAKER: Kishor Khankari, Ph.D.

Associate Partner, Syska Hennessy Group,
Ann Arbor, MI**►THURSDAY, MAY 10 5:30 PM - 9:00 PM**LOCATION: PG&E Pacific Energy Center, San
FranciscoTOPIC: *Awards & Product Show*

SPEAKER: Award Winners

►SATURDAY, JUNE 10 11:00 AM - 2:00 PMLOCATION: Oakland, Park
*First GGASHRAE picnic***►THURSDAY, JUNE 14 5:30 PM - 9:00 PM**

LOCATION: Scott's Seafood, Oakland

TOPIC: TBD

SPEAKER: TBD

TBD = To Be Determined. Visit www.ggashrae.org/calendr.htm for updates, presentation summaries, speaker biographies and to register for the meetings.**PRESENTATION SUMMARY:**

The presentation will cover the basis of stratified air distribution systems and discuss various design and operational parameters that affect their performance

EMPLOYMENT OPPORTUNITIES*Professional Mechanical Engineer Wanted*

Part-time senior engineer for a national construction consulting firm

Sacramento or Concord, CA area

A well-known national firm of engineers and consultants seeks a mechanical engineer with both design and construction experience in HVAC and plumbing systems for buildings. The successful candidate will meet the following requirements:

- B.S. degree in mechanical engineering
- Professional Engineer license in California
- 15 or more years of post-graduate mechanical engineering experience related to building construction
- Competent with Microsoft Office software (Word, Excel, Outlook)
- Be an outgoing, people-friendly team player
- Be willing to travel by car in California 2 or 3 days a week.

Compensation negotiable

Contact Information to Submit Resume:*Please fax your resume submissions to:*

Madsen Kneppers & Associates, Inc.

Fax: (916) 353-0201



Dear Golden Gate ASHRAE Members and Friends,

I laughed until I cried listening to Tom, Dick and Dick share their stories and experiences. Having other members and guests contribute was really great too. What have been some of your "I'll never do that again" moments? We have all had them and can continue to learn from each other. Staying plugged in with ASHRAE at the Society and local Golden Gate level is an incredible way to continue learning and become better professionals. Another way Golden Gate is working to keep you better connected with each other is by creating LinkedIn group. Look for details on joining very soon! There is also an amazing opportunity for an [ASHRAE sponsored fellowship](#) at the Department of Energy in Washington DC.

April showers bring many ASHRAE events. Kick starting with the incredible opportunity to tour the Kaiser Oakland Medical Center while still under construction on Thursday April 12. This continues our tradition of an annual building tour. Immediately following the tour we will carpool and caravan back to our usual stopping ground at Scott's in Jack London Square for social hour and a technical seminar before a program on stratified air distribution systems from distinguished lecturer, Kishor Khankari.

Coincidentally sticking with an air distribution theme, the PEC has several upcoming classes available to [register](#) for and on April 19 ASHRAE society is hosting a webcast on [Dedicated Outside Air Systems](#).

Lots to take advantage of this month and always with ASHRAE. I look forward to seeing you soon!

Respectfully Yours,

Kristin DeMartini, Golden Gate ASHRAE President

April – 2012...Inflation of Expectations

Tom Gilbertson, Chapter Historian

"Inflation" it is perhaps more than being just about money.....it seems that it also about **"Expectations"**...

The ASHRAE-related industries mirror the inflated expectations that have changed in our industry; and that has many good features. Since "ASHRAE" is a lot about a quantitative measurement of the quality of life...inflated expectations are not necessarily a bad thing.

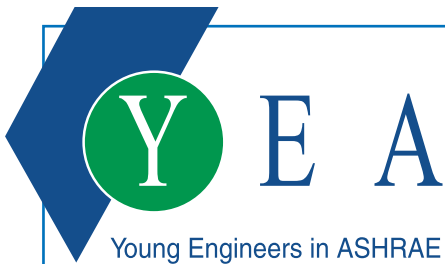
In the 1957 Edition of the ASHRAE Guide...forerunner to the ASHRAE Handbook Series...the Heating Calculation Load Example on page 285, that depicts the construction of the home's outside walls....does not have **"insulation"** in the wall cavity.....**1957...and no insulation!**.....Today our own, California Title 24 demands insulation...and copious quantities, at that. It is interesting that some sort of demand...not necessarily the "public demand" has mandated something as "obvious" as "insulation".....Ah...."inflated expectations"....(or perhaps more "sale" of insulation)

ASHRAE has set generally the accepted Standard for Ventilation...ASHRAE 62...and this in conjunction with most local ordinances has made it virtually illegal to ignite tobacco, e.g.**"smoking of cigarettes in a building"** and look at the conditions from where this came from in the **"historic dark age of 1952"**....

September of 1952 found me in a hospital isolation ward on the top floor of a large facility...diagnosed with infantile paralysis....poliomyelitis, to the trade. My roommate...new the second day... was an older man...very ill...diagnosed with the same problem...polio. But here the story gets almost comical..."Ozzie"...my roommate, absolutely confined to the bed....unable to get out...was allowed to **"smoke cigarettes"**... in this un-air-conditioned hospital room, un-ventilated room (it had an operable window)...in the middle of a hot summer... and he was allowed to smoke while lying in bed....It is hard to believe that "smoking was even allowed in those conditions, yet no one raised any objection....We have come a long way in 60 years...but maybe that is because we had a long way to come?... on a personnel basis I'd say that the **inflation of expectations** as related to "smoking" took way too long...

But back to the story....after 3 days of living in a "Smoke-filled Room"....(not to be confused with one in the Chicago's Blackstone Hotel)...I literally crawled out of bed and "confiscated" Ozzie's cigarettes....and refused to return them. Ozzie was one angry man!...(this is perhaps the understatement of all times).....after two days of him pleading for their return....I obliged him.....and then I refused to return his matches. Ozzie complained to our doctor (we both had the same one)...but strangely enough...I was not ordered to comply. It turns out that "Ozzie" had not been expected to survive...he was that ill....but the doctor later confided to my Father that the doctor observed a change in his patient....."Ozzie"...was so angry he developed a strange will-to-live and he rallied against his sickness and did survive....he probably wanted to beat the daylights out of me.





Young Engineers in ASHRAE

The Young Engineers of ASHRAE (YEA) is committed to encourage participation from our Golden Gate members 35 years old and below. Please contact Michelle Dionello (michelle.dionello@arup.com) with any comments or if you are interested in becoming more active in our group. YEA hosts social events, technical tours, and helps with outreach to young students in the Bay Area.

For more information on Golden Gate YEA check out: www.ggyea.org

Next Event – YEA Speed Networking

May 8th, 2012-6:00-8:00pm, Autodesk Gallery at One Market

This event is open to all Golden Gate Chapter members.

What is this? We will have a half and hour tour of the Autodesk Gallery and one hour of speed networking. Remember to bring your business cards!

Why participate? Because you want to get know your chapter members better. YEA members will be able to meet Distinguished Members of ASHRAE (DMA) and be more involved in the chapter.

What's the point? From this event, we would like to start to make connections for YEA members to have a mentor within the chapter.

Please put this event in your calendar! Reserve your spot today for the event today:

<http://yeaspeednetworking.eventbrite.com/>



Pictured above: YEA member: Kevin Manhen & DMA member: Shakeel Ahmed showing enthusiasm for the upcoming event!!

Potential Sponsors

If you would like to help sponsor this event, please contact Michelle Dionello. Thank you to Norman Wright for their contribution, which has allowed us to book our wonderful venue!

NORMAN S. WRIGHT
Mechanical Equipment Corporation

*David Blindheim, ASHRAE Golden Gate CTT
Committee Chair*

Free ASHRAE Webcast Highlights Dedicated Outdoor Air Systems: Registration Opens March 19

While conventional HVAC systems mix fresh outdoor air with the return air in one unit, dedicated outdoor air systems use standard equipment to condition fresh air separately before it enters the building. This break from tradition is quickly becoming a proven tool for utilizing energy more efficiently, and can provide a cost savings to the consumer.

Registration for ASHRAE's upcoming webcast, "Dedicated Outdoor Air Systems – A Path to Balancing Energy and IEQ," opens today, March 19. The webcast focuses on the departure from conventional HVAC systems and takes place April 19, 2012, from 1– 4 p.m. EDT.

"Based on growing popularity the chosen topic for the 2012 webcast is Dedicated Outdoor Air Systems (DOAS)," Andy Cochrane, chair of the ASHRAE committee overseeing the Webcast, said. "This webcast will describe the role of DOAS in the overall HVAC system, and discuss various DOAS equipment configurations and applications. From understanding DOAS system characteristics, to avoiding pitfalls and challenges unique to DOAS applications, the webcast is a must see for discerning owners and designers alike."

The webcast presenters are Tim McGinn, P.E., principal, DIALOG; Stanley Mumma, Ph.D., P.E., Professor Emeritus of Architectural Engineering, Pennsylvania State University; and John Murphy, applications engineer, Trane.

Three Professional Development Hours (PDHs) or three AIA Learning Units (LUs) are available.

The live program will be archived online until May 3, 2012, for viewers who are unable to participate on April 19. Registration is required to view the archived program. A DVD of the webcast will also be available for purchase.

To register, or for more information, visit www.ashrae.org/doaswebcast or call 678-539-1200 or email ashrae-webcast@ashrae.org.

MARBLE DRAW



Ross Farris & Christine Lee

A big thank you to Redwood Empire Chapter who graciously donated prizes for our joint meeting raffle last month! Quite a few lucky folks took home some great prizes but there was no actual marble draw last month. However, Christine and Ross will be bringing the marble draw back in full force for the April meeting! That means the odds of winning have increased to 1 in 7! We look forward to seeing you all at Scott's Seafood on April 12th!

As always, we are in need of sponsors for each meeting. If your company donates prizes, your company's logo will display on a slideshow during the non-speaker portions of the meeting.

Please contact Ross Farris or Christine Lee for more details:

RFarris@glumac.com - 415.398.7667.

Christine.Lee@arup.com - 415.957.9445

Students / Advisors / Faculty Members

ASHRAE's Golden Gate Chapter is calling for applications from Student members for Scholarships to be awarded this year. Please find the descriptions and application requirements below and the application form attached. Applications are required by April 15th

SCHOLARSHIPS

These scholarships were established to provide financial assistance to local university, state university or community college students. It is intended to introduce students to the technical, educational and social benefits that can be derived from the Society. Please note that scholarships may only be awarded to an individual once.

GRADUATE STUDIES

Candidates for this scholarship will be selected from students studying a wide range of topics related to the HVAC&R industry at graduate level. They will be enrolled in a course related to the study of refrigeration or air conditioning, including comfort, energy usage and controls and have a serious goal of continuing with a career related to the field after their course finishes.

- The amount of the scholarship to vary from \$1,000 to \$2,000 subject to an evaluation of the required documents and an interview.
- The applicant must demonstrate interest in HVAC&R by describing their specific area of study
- Submit a personal statement (one pages or less) on how your graduate studies will benefit and/or impact HVAC&R related industries. It will be judged on the basis of originality, knowledge of the industry, correlation between student's background and objectives, structure of thoughts, and logic of conclusions

Additional Requirements for all Scholarships:

- Recommendation from Advisor, Dean or Department Chair
- Complete resume of completed courses, work experience, and general interest

UNDERGRADUATE JUNIOR/SENIOR AWARD

The candidates for these scholarships will be selected from students who are enrolled in an engineering or technical curriculum and show an academic interest in refrigeration and/or air conditioning related courses, including controls with a serious goal of entering the field of HVAC&R Engineering after graduation.

- Scholarship to be granted to an enrolled full time Engineering student who has a cumulative 3.5 GPA.
- The student will be in their junior or senior year at time of application
- The amount of the scholarship to vary from \$1,000 to \$2,000 subject to an evaluation of the required documents and an interview.
- The applicant must demonstrate interest in HVAC&R by having taken or enrolled in one or more related course or project.
- Submit a short essay (one pages or less) on "Why mechanical engineering that pertains to heating, refrigeration, and air conditioning is or will be my chosen career." The essay will be a major factor in the selection process. It will be judged on the basis of originality, knowledge of the industry, correlation between student's background and objectives, structure of thoughts, and logic of conclusions.

Additional Requirements for all Scholarships:

- Recommendation from Advisor, Dean or Department Chair
- Be a full time student (12 units or more)
- Complete resume of completed courses, work experience, and general interest
- Photocopy of last semester/quarter college/university transcript

COMMUNITY COLLEGE AWARD

The candidates for these scholarships should be selected from students who are enrolled in a technical curriculum focused on refrigeration and/or air conditioning, with a serious goal of entering the field of HVAC&R Engineering after graduation.

- The scholarship awards vary from \$500 to \$1,000.
- Must have C average or higher.
- Must have completed at least one course in the HVAC program
- Submit a short essay (one pages or less) on "Why mechanical engineering that pertains to heating, refrigeration, and air conditioning is or will be my chosen career." The essay will be a major factor in the selection process. It will be judged on the basis of originality, knowledge of the industry, correlation between student's background and objectives, structure of thoughts, and logic of conclusions.

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Requirements for Scholarships are as follows:

- Recommendation from Advisor, Dean or Department Chair.
- May be a full time or part time student
- Complete resume of completed courses, work experience and general interest
- Last semester/quarter college transcript

GRANTS AND SCHOLARSHIP FUNDING

Two principal funds exist which support the scholarship funding of the Chapter:



Eric Thor Andresen Memorial Scholarship Fund

Eric Thor Andresen was a young engineer and ASHRAE member both in Society and the local Golden Gate Chapter. He was living in San Francisco and working for Glumac & Associates, at the time of his death on Easter Sunday April 15, 1990. Eric was born on January 29, 1961 and was the only son of Flemming and Svava Andresen and brother of Denise.

Eric was a graduate of Penn State where he studied Architecture and also played on the Tennis Team. Eric was a strong believer in the protection of the environment and wished to work towards this goal to help clean it up by efforts in his chosen profession. The Andresen Family and the Golden Gate Chapter of ASHRAE established a memorial Scholarship Fund in his name on April 30, 1991 with a [Memorandum of Understanding](#) (~650kb PDF).

The purpose of the Eric Thor Andresen Memorial Scholarship Fund (ETAMSF) is to provide some financial assistance and encouragement to a qualifying student with the intent to help them further their education and pursuit of academic excellence in the area of energy conservation, control of the indoor environment or related areas of interest in the HVAC field.

There are some specific eligibility criteria for this scholarship, regarding college location, choice of Engineering or Architectural study major and ASHRAE student chapter affiliation with the Golden Gate Chapter. Any student selected cannot have received the scholarship before and must be attending classes full time, or be enrolled in an authorized work/study program. The final selection of a student to receive the ETAMSF Award is made by the Student Activities Committee and approved by the Chapter Board.

The monies for this Scholarship are from the interest earned on the principal of the Fund. The Golden Gate Chapter of ASHRAE is the administrator of this account and its investment portfolio. There have been annual Tennis Tournaments sponsored by the Chapter for the purpose of raising money to increase the principal of the ETAMSF. The Andresen Family has been generously matching those amounts and other family and friends of Eric have continued to send memorial checks to build the principal and allow for a larger scholarship amount.

The Golden Gate Chapter is proud to annually award the ETAMSF check in Eric's memory, to help continue his legacy to the environment through better HVAC, keep his youthful spirit alive in the Chapter Tennis Tournaments and to aid and support the Student members of ASHRAE achieving their educational goals.

Golden Gate Chapter Scholarship in memory of Don Bryant



Donald C. Bryant, Sr. was a well known and honored member of the Golden Gate ASHRAE Chapter community and an ASHRAE Fellow. Mr. Bryant was an educator whose long and dedicated career spanned more than 40 years.

His contributions to the teaching of the science and technology of engineering read like a chronicle of the professions concerns and growth from the postwar retraining era through the development of nuclear energy to the age of energy conservation.

Mr. Bryant began his teaching career at the University of California, Extension as an instructor of engineering design in 1946. In the 1950s, he taught the first in a series of courses in heating, ventilation, air conditioning, and refrigeration developed to meet the needs of the mechanical engineering profession. These courses later formed the basis of our HVAC-R Program, a curriculum that is professionally recognized by a certificate from the Golden Gate Chapter of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE).

The hundreds of students who have passed through his curriculum have lauded his practical approach to the fundamentals and insights for design practice.

"He has believed in and committed himself to ongoing education for those in the field of HVAC with constant support and empathy for the student—a real contribution.

Mr. Bryant was a faculty member of City College of San Francisco and the Curriculum Coordinator and Adviser for our HVAC-R Program.



SCHOLARSHIP APPLICATION FORM - 2012

Name	
Sponsorship Requested	
Graduate Studies _____ Undergraduate Senior Award _____ Community College Award _____	
Local Address	Phone
Home Address	Email
University/College	
Major/Course/Program with emphasis	
Year in School	
Faculty Advisor	Advisor (email/phone number)
Advisor/Dean/Department Head recommendation	
ASHRAE Member (attach application)	
Member Since (year)	

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Obligations if awarded • Meet with your advisor and request a brief recommendation • Attending a chapter or section meeting after the meeting to describe your interest in HVAC&R (this may be waived depending on home location) • Writing a short description of your interest in HVAC&R FOG newsletter • You are a student member of ASHRAE	Selection Procedure • The committee and board shall determine if your scholarship shall be awarded from the ETAMSF or GGCS • The GGC Board of Governors have final selection • The committee shall present to the board the strongest applications based on • Quality of personal statement • Relevance of studies to date • Benefit of attending the meeting
Signature (student)	Faculty Advisor Signature
Date	Date

Provide:

- Application Form
- Essay or Statement (see website)
- Resume
- Transcript copy (if requested)

Send to

John Williams / john-g.williams@arup.com / 560 Mission #700, San Francisco CA 94105

Deadline – April 10th



SCHOOL OF ENGINEERING

1600 Holloway Avenue
San Francisco, CA 94132

Tel: 415/338-1174
Fax: 415/338-0525

Graduate Program in Energy Systems

Issues related to limited energy resources, energy efficiency and conservation, and renewable energy, as well as the effects of ever-increasing energy production and consumption are prompting a significant surge in the need for professionals with an advanced education in energy systems.

A newly developed concentration area for the SFSU Master of Science in Engineering degree addresses this rising demand for energy professionals. The Energy Systems concentration area includes coursework in:

- Energy Resources and Sustainability
- Renewable Energy Systems
- Energy-Efficient Buildings
- Energy Auditing, Measurement and Verification

Research areas for program faculty include industrial energy efficiency, advanced materials for solar cells, internal combustion engines, energy and emissions life-cycle analyses, and energy storage.

Applications are now being accepted
for the Fall 2012 semester.

For more information, please visit:

<http://engineering.sfsu.edu/>



THE CALIFORNIA STATE UNIVERSITY: Bakersfield, Channel Islands, Chico, Dominguez Hills, East Bay, Fresno, Fullerton, Humboldt, Long Beach, Los Angeles, Maritime Academy, Monterey Bay, Northridge, Pomona, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo, San Marcos, Sonoma, Stanislaus

ASHRAE/DOE Fellowship

ASHRAE is sponsoring a 12- to 18-month fellowship program with placement at the Department of Energy in the Office of Building Technologies, Building Energy Codes Program in Washington, DC. This fellowship provides the traditional ASHRAE Member with exposure to the area of public policy. This assignment will enable a selected ASHRAE member to assist DOE in one of the following code deployment activities:

1. Code Compliance;
2. Residential Duct Test Training;
3. Assessment of the Impact of Updating State Energy Codes; or
4. Advanced Energy Code Training.

Federal government fellowships provide a valuable public service to the nation while, at the same time, providing engineers and scientists with a unique opportunity to participate directly in the policy-making process. This is an exciting, rewarding, and educational period in their professional careers. This enriching experience enables ASHRAE/DOE Fellows to bring back to their employers an insider's perspective on government decision-making that can contribute significantly to the mission and vision of the organization.

A few additional points to stress to your members, should they be interested:

- The fellowship requires living in or around Washington, DC for a period of 12 months, with the possibility of an extension for a second year.
- The fellowship will require reporting to DOE offices on a daily basis (i.e., a 40-hour work week).
- The individual selected must be a U.S. citizen.
- A stipend of \$74,872 gross (i.e., before taxes, etc.) will be provided by DOE.
- Health insurance reimbursement will be provided by DOE up to \$500 per month, with any monthly costs over that being paid for by the fellow.
- Ideal candidates will have a technical background, with 3-10 years experience in the building industry, as this is an early career development opportunity.
- The fellowship can begin as soon as a suitable candidate is selected by DOE.

If you or your members want to submit a résumé and a letter of interest for further consideration, please contact/have them contact Doug Read (dread@ashrae.org, subject of e-mail "Clarifications re: ASHRAE/DOE fellowship").

MEMBERSHIP PROMOTION

Erica Stewart

March continued to be a strong month for new members. Please join us in welcoming the following new members:

ASSOCIATE:

Mr. Gustavo Carrillo
Mr. Zachary Denning
Mr. Robert Henderson
Mr. Tavis Mason

Mr. Nathan Schwebke
Ms. Stephani Szczechowski
Mr. Michael Whitlatch
Mr. Mike Wynne

MEMBER:

Mr. Gar Girard Bailey
Mr. Ricardo Bravo
Mr. David Culler
Mr. Steve Hambalek

Mr. Bryan Hayes
Mr. Fergus Lenehan
Ms. Ann McCormick

As a reminder, to be a member of the Golden Gate Chapter you must first be a member at Society (www.ashrae.org/membership/page/589). If you are currently a Society member and wish to join the Chapter, you must complete an application and send a check made payable to Golden Gate ASHRAE to our treasurer, Annie Foster (P.O. Box 19154, San Francisco, CA, 94119). Chapter dues are \$50 for Associates and Members, \$20 for Students. And remember, dinner is free for full-time students, all year long! Contact erica.stewart@kp.org for an application.

MEMBERSHIP ADVANCEMENT

If you are an Associate member, becoming a full member may be easier than you think. The following count toward the 12 points necessary to advance to full Member status. You must update your biography on the Society web site and email membership@ashrae.org to advance.

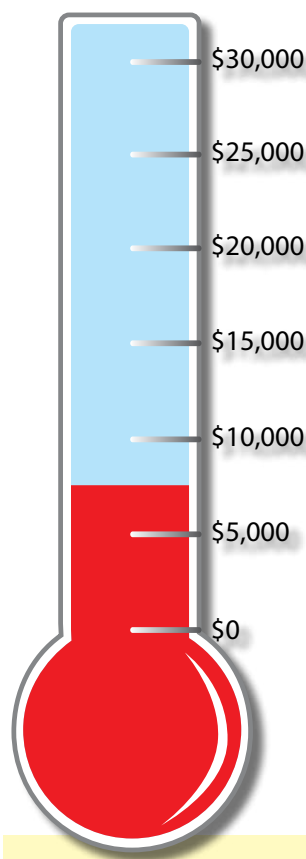
Non-accredited degree = 4 points

Accredited degree = 6 points

P.E. = 3 points

Every year working in industry = 1 point

CHAPTER RESEARCH COMMITTEE



The following individuals and companies have generously supported ASHRAE Research and the Golden Gate Chapter for the 2011-12 Campaign.

Thank you for supporting the research of tomorrow, TODAY!

ORGANIZATIONS

\$1000 & Over

Golden Gate Chapter

\$250 to \$999

R.F. McDonald Co.
Conservation Mechanical
Acutherm

INDIVIDUALS

\$1000 & Over

Glenn Friedman

\$250 to \$999

Richard Charles
Mark Hydeman

INDIVIDUALS

Up to \$249

Edgar De Guzman
Kristin DeMartini
Gary Harbison
Scott Wayland
Erik Kolderup
Thomas Weaver
Isabelle Lavedrine
Annie Foster Courtney
Kyle Blocker
Dennis Thompson
Tyler Bradshaw
Kevin Dowling

Matthew Williamson
Matt Russell
Michelle Dionello
Gail Brownell
Cliff Blythe
Wasil Popow
Gabriel Romero
Shlomo Rosenfeld
Clifford Scofield

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

*For more information, please contact Jon Shipley 415-264-5509,
jshipley@victaulic.com*

We are currently at \$7,388.

Stay Ahead of the Curve:

Use ENERGY STAR® Portfolio Manager to Benchmark Your Building

The latest news from the capital is that non-residential buildings in California will be required to disclose their energy use during certain real estate transactions as soon as January 1, 2013, under [Assembly Bill 1103](#) (AB1103).

The legislation indicates that ENERGY STAR®'s Portfolio Manager will be the required tool used for rating buildings' energy use. This free, online tool provides a weather-normalized rating of your building's energy use on a scale of 1-100. Pacific Gas & Electric Company (PG&E) will be hosting several classes that will bring you up to speed with the impending legislation and teach you how to use the benchmarking tool.

APRIL 1ST IS NO JOKE FOR SAN FRANCISCO BUILDINGS

In San Francisco, April 1st is more than a day for practical jokes... it's the deadline for non-residential properties over 25,000 sq. ft. to disclose their energy usage to the city. San Francisco takes the impending mandates of AB1103 one step further. Rather than requiring energy usage disclosure at the point of a major financial transaction, San Francisco commercial property owners must submit a benchmark score or measurement to the SF Department of Environment annually on April 1st (buildings 10,000-24,999 sq. ft. will need to comply by April 1, 2013).

WHY YOU SHOULD PREPARE NOW

Benchmarking your building now will provide you with several benefits:

- **Receive recognition.** If your building ranks among the top 25%, it is eligible to receive the ENERGY STAR® label. Like the ENERGY STAR® label found on energy efficient TVs and refrigerators, this label recognizes a building's superior energy performance. This award can enhance your image with your tenants, peers, or customers.
- **Find out now which of your buildings is an energy hog and set targets for improvement.** Assessing your building rankings now will enable you to take steps to improve your scores, well before it's time to make them public. Energy wasted equals money wasted; knowing your scores now will allow you to identify which buildings need the most attention and what steps you can take to give those buildings a head start on becoming more energy-efficient. From prioritizing capital improvements, to obtaining an audit, benchmarking is a first step toward effectively implementing energy efficiency projects.
- **Becoming more efficient pays.** On average, ENERGY STAR® labeled building are 40% more efficient than average buildings and have energy bills that are on average \$0.50 per square foot lower per year.

- **Be more profitable.** A 2009 RICS study reports ENERGY STAR® buildings command 16% higher selling prices and 6% higher effective rents. Another 2009 study found that Energy Star® labeled buildings have 3% higher occupancy rates than non-labeled buildings. For organizations running on thin profit margins such as hospitals and grocery stores, every dollar saved on energy is like an added \$20 and \$59 in additional revenue, respectively.

HOW TO PREPARE

This spring, PG&E is hosting several workshops on benchmarking. Available classes include:

Benchmarking Energy Use in Commercial Buildings

Learn how to benchmark your building's energy performance with the help of PG&E's Automated Benchmarking Service - a free, easy-to-use service that automatically sends your commercial building's energy use information to the EPA's ENERGY STAR® Portfolio Manager every month. This class will include a hands-on benchmarking exercise so that attendees can evaluate an actual building from start to finish and see the ENERGY STAR® score. PG&E sponsored classes are free, but seating is limited.

San Ramon – March 28th 8:30am – 12:30pm

[Register here.](#)

San Francisco – April 17th 8:30am – 12:30pm

[Register here.](#)

San Jose – April 19th 8:30am – 12:30pm

[Register here.](#)

Credits: AIA HSW/SD: 4.0

What's Next After Benchmarking? This course explores how to set targets for improvement: estimating the actual amount of energy savings needed to reach a higher score; which low-/no-cost or capital upgrades might produce various magnitudes of savings; which utility incentive programs could help identify or finance those improvements; etc. It's not about what your building's score is today -- it's about what you want that score to be and how to get it there! PG&E sponsored classes are free, but seating is limited.

San Ramon – March 28th 1 – 4:30pm [Register here.](#)

San Francisco – April 17th 1 – 4:30pm [Register here.](#)

San Jose – April 19th 1 – 4:30pm [Register here.](#)

Credits: AIA HSW/SD: 3.5

For more information, email: benchmarking@eefg.com or call 415-814-3744.

For information on the San Francisco Ordinance, visit:

SfEnvironment.org/ecb

For a full listing of PG&E classes, visit: <http://pge.com/my-business/edusafety/training/>

UC Berkeley Extension Training Course

This Spring the UC Berkeley Extension Service is offering a practical courses on control system design and verification co-taught by Mark Hydeman, PE, FASHRAE and Reinhard Seidl, PE.

HVAC Control and Energy Management Systems (X473, EDP 326405) provides the practicing engineer, designer, and building operation engineer with a working knowledge of the principles involved in the selection and design of temperature controls for HVAC systems. Topics include controls theory and fundamentals; pneumatic, electric, electronic, and computer-based hardware; control application for zones; air handlers; and chilled-water and hot-water systems. On completing the course, you should be able to specify and design control systems for normal applications.

This course starts on Wednesday March 14th and runs for 10 weeks (6:30pm-9:30pm each night). This is the ninth year that we have co-taught this popular course.

This course is only taught once a year. **HVAC Control and Energy Management Systems (X473)** is one of the four core courses for the HVAC/R Certificate program co-sponsored by UC Berkeley Extension Service and the Golden Gate Chapter of ASHRAE. Both courses will be offered at the UC Berkeley Extension Service Downtown Center at 425 Market St. in San Francisco. This classroom is conveniently located between the Embarcadero and Montgomery Street BART and MUNI stations. Enrollment for each course costs \$695.

Registration information for the course is located at the UC Berkeley Extension Service website at:

• **HVAC Control and Energy Management Systems (X473, EDP 326405)** <http://www.unex.berkeley.edu/cat/course159.html>

Information on the HVAC/R Certificate Program is located at: <http://www.unex.berkeley.edu/cert/hvac.html>

More information on these courses is available off our website at: <http://www.taylor-engineering.com/teaching/classes.shtml>.

Please contact Mark Hydeman (mhydeman@taylor-engineering.com) or Reinhard Seidl (rseidl@taylor-engineering.com) if you have any questions.

SHARE THE GLORY -This HVAC/R program needs a few good teachers. If you are interested in teaching courses in this series please contact Jennie Black Deer of the UC Berkeley Extension Service, jlb@unx.berkeley.edu, (510) 643-1488) or contact Mark or Reinhard for more details.

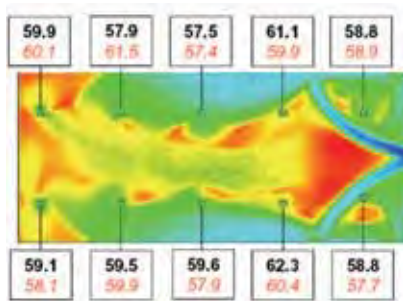
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Optimizing Energy and Comfort Performance of Underfloor Air Distribution (UFAD) Systems: Guidelines, Tools, and Lessons from a Decade of Research and Practice

As the adoption of underfloor air distribution (UFAD) has grown, a strong desire for design guidance and tools has emerged among industry professionals. To meet this need, the Center for the Built Environment (CBE) through its "industry/university cooperative research" approach has produced reliable design tools and energy models, as well as practical guidelines for design, commissioning, and operation of UFAD buildings.

CBE's extensive UFAD research spanning more than ten years has led to the recognition of CBE as the leading research institution on UFAD technology. The purpose of this workshop is to provide an opportunity to learn about and discuss CBE's most recent collection of UFAD technology tools and resources.

This event is sponsored by the Center for the Built Environment (CBE), at the University of California, Berkeley, and the PG&E Pacific Energy Center.



Wednesday, April 18, 2012
1:00 PM – 5:00 PM

PG&E Pacific Energy Center
851 Howard Street, San Francisco, CA 94103
Also available by live webcast

Registration

Pre-registration for the event is strongly recommended.

Register for the symposium in San Francisco:
www.pge.com/pec/classes/5663.htm

Register for the live webcast:
www.pge.com/pec/classes/5665.htm

Agenda Overview

- 1:00 pm Welcome and introductions
- 1:30 pm Energy performance
- 2:15 pm Impact of furniture and thermal mass on loads
- 2:30 pm Design sizing considerations for UFAD systems
- 3:00 pm *Break*
- 3:15 pm Cooling load design tool demonstration
- 3:45 pm Underfloor plenum design guidelines
- 4:00 pm UFAD performance case studies
- 4:30 pm Updated guidelines from ASHRAE design guide
- 4:45 pm Next steps/wrap up
- 5:00 pm *Adjourn*

For speaker bios, please see following page.

Speaker Bios

Fred Bauman, P.E., Research Specialist, Center for the Built Environment

Fred's research interests include underfloor air distribution (UFAD) and task/ambient conditioning (TAC) systems, room air distribution, thermal comfort, building energy use, ventilation and indoor air quality, laboratory and field measurement methods, and natural ventilation.

Fred has led the development of CBE's world renowned research program on underfloor air distribution and is a frequent invited speaker on UFAD design at workshops and conferences. Fred is the author of the Underfloor Air Distribution (UFAD) Design Guide, published by ASHRAE in 2003, and has also written more than 50 technical articles on UFAD and TAC systems. In recent years Fred has led CBE's research program on advanced integrated systems with a focus on radiant slab cooling. He has received two Best Symposium Paper Awards from ASHRAE (1992, 1993), and in 1997, received the ASHRAE Distinguished Service Award. Fred received an MS degree in Mechanical Engineering from UC Berkeley, and a BS in Mathematics from Harvey Mudd College.

Allan Daly, P.E., Principal, Taylor Engineering

Allan Daly, a principal with Taylor Engineering, brings his broad experience from government, research, teaching, and consulting to bear in the design of innovative and sustainable mechanical systems as well as in researching and analyzing building systems. He holds a BS in civil engineering and a BA in drama from Stanford University as well as a MS in civil engineering from UC Berkeley. He has worked as a program assistant for the Environmental Protection Agency's Indoor Air Division and the Department of Energy, as a researcher for UC Berkeley's Center for Environmental Design Research, and as a mechanical engineer for Ove Arup and Partners, San Francisco. Allan joined Taylor Engineering in September 2000.

Edwin Lee, Doctoral Candidate, Oklahoma State University

Edwin Lee is a doctoral student in the mechanical engineering program at Oklahoma State University. He has

eight years of experience with building simulation tools, and has been a member of the EnergyPlus development team for six years. His research topics include ground heat transfer, phase change materials within building envelope design, underfloor air distribution systems, central plant system simulation, and integration of simulation components within the whole-building energy simulation shell.

Stefano Schiavon, PhD, Assistant Prof. of Architecture/ Sustainability, Energy and Environment, UC Berkeley

Stefano's research focuses on indoor environmental quality parameters and building features that affect occupant productivity and building energy consumption. Other research interests include personal environmental control systems, underfloor air distribution (UFAD), radiant systems, building energy simulation, air movement, thermal comfort and statistical modeling.

At the University of Padova, Italy, he received a Ph.D. in Energy in 2008, and a Master's Degree in Mechanical Engineering in 2005. He has been a visiting scholar at both Tsinghua University, China, and at the International Centre for Indoor Environment and Energy at the Technical University of Denmark. He received the REHVA Young Scientist Award in 2010.

Tom Webster, P.E., Project Scientist, Center for the Built Environment

Tom has been engaged in building research and development for over thirty five years and currently co- leads several advanced integrated systems research projects covering laboratory and field testing, energy simulations, and wireless monitoring systems development. His past experience includes research on solar energy systems, building energy analysis and simulation, HVAC control system product development, air handler diagnostics, and monitoring system development. Tom has spent the last 12 years conducting research on underfloor air distribution (UFAD) systems including room air stratification laboratory testing, simulation model development, UFAD system cost analysis, and field testing.



Center for the Built Environment (CBE)
University of California, Berkeley
390 Wurster Hall #1839
Berkeley, CA 94720-1839
510.642.4950
email: cbe@berkeley.edu
www.cbe.berkeley.edu



Pacific Gas and Electric Company
Pacific Energy Center
851 Howard Street
San Francisco, CA 94103
415.973.2277
email: pecinfo@pge.com
www.pge.com/pec

Public Input Sought on Alternative to ASHRAE Standard 62.1 Ventilation Rate Procedure Proposed

A proposed change to the ventilation rate procedure in ASHRAE's indoor air quality standard is open for review after changes were made based on public input last year.

ANSI/ASHRAE Standard 62.1-2010, Ventilation for Acceptable Indoor Air Quality, sets minimum ventilation rates and other requirements for commercial and institutional buildings. The ventilation rate procedure provides a prescriptive method for determining minimum ventilation requirements. It accounts for pollutant sources from both the building and its occupants, and allows the designer to account for the efficiency of different ventilation systems when delivering outdoor air to the breathing zone.

Proposed addendum f was first released for public comment in September 2011 after some users of Standard 62.1 indicated the ventilation rate procedure was "too complicated," according to Standard 62.1 chair Roger Hedrick. He said the 62.1 committee agreed that application of the multiple-zone recirculating system equations described in Section 6.2.5 and Appendix A can be complex.

"When designing multiple zone recirculating ventilation systems, Table 6-3 provides a default value of Ventilation Efficiency (Ev) based on the largest value of the zone primary (Zp) outdoor air fraction, for all the zones served by the system," he said. "However, if Max (Zp) exceeds 0.55, then Appendix A must be used to design the system outdoor airflow. Addendum f attempts to simplify the design process by providing a simplified default approach for cases with Max (Zp) greater than 0.55."

The earlier review draft set the default value of the zone primary outdoor air fraction based on a default minimum zone primary airflow set as 30 percent of the zone design primary airflow.

"The public review comments pointed out that this formulation did not work mathematically under certain conditions," Hedrick said. "This new public review version instead simply allows Ev to be set to 0.6, unless a higher value is provided by Table 6-3 or by using Appendix A. Use of a relatively low value of Ev will result in higher outdoor airflow rates, but using the default will simplify the system design process."

Also open for review is addendum i, which would add limits for low humidity. Recent studies have shown that excessively low humidity may result in unacceptable indoor air quality. The Standard 62.1 committee is interested in the appropriateness of the relative humidity limit and the climate zones where the requirement applies. The addendum is open for an advisory public review, meaning comments received allow for constructive input and need not be resolved or formally acted on by the project committee.

In addition to addenda f and i, three additional addenda are open for public review from March 23 until April 22. For more information, visit www.ashrae.org/publicreviews. They are:

- Addendum h –Table 6-1, includes ventilation rates for "Sports arena (play area)" and "Gym, stadium (play area)." Both space types have ventilation rates based on floor area only, the per person rate is zero. Users of the standard have expressed interest in applying demand controlled ventilation to these space types, which is effectively prohibited by the lack of a per person component to the ventilation rate. This proposed addendum replaces both of these space types with "Gym, Sports Arena (play area)", with $R_p = 20$ cfm/person and $R_a = 0.06$ cfm/ft² and assigns this new space type with an air class of 2 rather than class 1 from the first publication public review version.
- Addendum k adds an exception to the recirculation limits on Class 4 exhaust airstreams from laboratory hoods which would allow use of heat wheel energy recovery in some cases. The exception defines several criteria which the airstream must meet before such heat recovery can be used, and the heat recovery system must limit recirculation airflow to less than 0.5 percent of the outdoor air intake flow.
- Addendum l adds a refrigerated warehouse space type to Table 6-1, providing revised ventilation rates for these spaces. These rates include a "People Outdoor Air Rate, R_p " which will require ventilation during periods of expected occupancy, but do not include an "Area Outdoor Air Rate, R_a " which will allow the ventilation rate to be zero for refrigerated warehouses with no occupants.

In addition, addendum j is open for public review from March 23 until May 7. The proposed addendum would add requirements to the Indoor Air Quality Procedure (IAQP) for determining minimum ventilation rates which require consideration of the combined effects of multiple contaminants of concern on individual organ systems. This "additive" effect is already implicit in the Ventilation Rate Procedure. This proposed change is intended to improve the IAQP by requiring consideration of these additive effects that are well established in the literature for many organ systems, according to Hedrick.

Operation and Maintenance Guideline from ASHRAE Now Available

A newly published guideline from ASHRAE gives facility managers and building operating staff a strong foundation on which to improve performance of all buildings.

ASHRAE Guideline 32-2012, Sustainable, High Performance Operation and Maintenance, provides guidance on optimizing operation and maintenance of buildings to achieve the lowest economic and environmental life cycle cost without sacrificing safety or functionality.

"The guideline will assist those who operate and maintain buildings to achieve high performance: safe, productive indoor environments; low economic life cycle cost; low energy, water and resource use; and low impacts on the environment," Michael Bobker, chair of the Guideline 32 committee. "The guideline applies to all buildings, not just new ones. We believe that all buildings can move toward sustainable high performance in their operations and maintenance."

The guideline applies to the ongoing operational practices for buildings and systems with respect to energy efficiency, occupant comfort, indoor air quality, health and safety. These systems include the building envelope, HVAC&R, plumbing, complementary energy systems, and utilities and electrical systems.

"Modern air conditioning systems protect the health, comfort and productivity of building occupants," ASHRAE Presidential Member Bill Harrison, whose presidential theme focused on the need for operation and maintenance, said. "Unfortunately, they consume a lot of energy while providing these benefits. When these systems are not operated properly, the energy they use can increase by 50 percent or more. ASHRAE Guideline 32 helps building owners and managers evaluate and eliminate the wasted energy caused by poor operating procedures. The elimination of non-value producing energy helps protect our environment while saving the building owner money. Guideline 32 provides a no regrets path to improving energy efficiency in our buildings."

The guideline contains recommendations for three levels of building oversight: senior managers, facility managers and technicians. Checklists for tracking that appropriate steps are being taken to move toward high-performance operation and maintenance are included for each.

Among the items on the checklist are:

• Technicians

- o Develop an HVAC system maintenance program using ANSI/ASHRAE/ACCA Standard 180, Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems*
- o Maintain access and code required clearances to all HVAC and electrical equipment*

• Facility managers

- o Develop and implement protocols for good facility/system documentation*
- o Establish performance baselines and targets. Institute a system for regular reporting and evaluation.*

• Senior managers

- o Assess buildings, workforce, practices, management tools and systems*
- o Measure and report on building performance as part of regular business analytics*

The cost of ASHRAE Guideline 32, Sustainable, High-Performance Operations and Maintenance, is \$69 (\$59, ASHRAE members). To order, contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 404-321-5478, or visit www.ashrae.org/bookstore

FEBRUARY MEETING RECAP



MARCH MEETING RECAP



Board Members

PRESIDENT

Kristin DeMartini
EnerNOC
500 Howard Street, Suite 400
San Francisco, CA 94105
(415) 531-5787
kdemartini@enernoc.com

PRESIDENT-ELECT

Thomas S. Weaver, P.E.
Conservation Mechanical Systems
732 Alfred Nobel Drive
Hercules, CA 94547
(510) 741-9100
tom@conservationmechsys.com

SECRETARY

Isabelle Lavedrine
Arup
560 Mission Street
Suite 700, San Francisco,
CA 94105
(415) 946-0224
isabelle.lavedrine@arup.com

TREASURER

Annie Foster Courtney, P.E.
WSP Flack + Kurtz
405 Howard Street, Suite 500
San Francisco, CA 94105
(415) 402-2248
annie.foster@wspfk.com

BOARD OF GOVERNORS

Erik Kolderup, P.E.
Kolderup Consulting
704 Tennessee Street
San Francisco, CA 94107
(415) 531-5198
erik@kolderupconsulting.com

Tyler Bradshaw, P.E.

Integral Group
427 13th StreetOakland, CA 94612(510)
663-2070 x232
tbradshaw@integralgroup.com

PAST-PRESIDENT

Gary Harbison
California Hydronics Corporation
2293 Tripaldi Way
Hayward, CA 94545
(415) 271-5261
gharbison@calhydro.com

Chair Members

CHAPTER TECHNOLOGY TRANSFER

David Blindheim
(510) 663-2070 ext. 226
dblindheim@integralgroup.com

MEMBERSHIP PROMOTION

Erica Stewart
(510) 847-4071
Erica.Stewart@kp.org

RESEARCH PROMOTION

Jon Shipley
(415) 264-5509
JShipley@victaulic.com

STUDENT ACTIVITIES CHAIR

John Williams
(415) 290-6791
John-G.Williams@arup.com

HISTORIAN

Tom Gilbertson
(925) 376-4516
tomagilbertson@msn.com

YEA (Young Engineers in ASHRAE)

Michelle Dionello
(415) 946-1681
michelle.dionello@arup.com

FOUNDATION BOARD

Glenn Friedman
(510) 263-1542
gfriedman@taylor-engineering.com

CRC 2012 HOST COMMITTEE

Scott Wayland
(510) 508-2244
sewayland@comcast.net

PUBLICITY

Billy Martin
(510) 741-9100
william@conservationmechsys.com

REDWOOD EMPIRE

Tim Twomey
(707) 245-4724
tt3853@att.com

PRODUCT SHOW

Hans Kaufmann
(510) 266-7885
hkaufmann@calhydro.com

GOLF

Tim Goepfner
(510) 293-1993
tgoepfner@calhydro.com

TENNIS

James Gronek
(415) 402-5824
James.Gronek@wspfk.com

MARBLES GAME

Ross Farris
(415) 398-7667
rfarris@glumac.com

WEBSITE

Robert Marcial
(415) 972-5177
rmarcial@pacbell.net

SEMINAR CHAIR

Clark Bisel
(415) 398-3833
clark.bisel@wspfk.com

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Isabelle.Lavedrine@arup.com

CHRIS PAPADIMOS

Principal



300 Montgomery Street, Suite 908
San Francisco, California 94104

Tel: +1(415) 986-9100 x202
Cell: +1(415) 342-5008
E-mail: chris@papadimosgroup.com

A C O U S T I C & V I B R A T I O N C O N S U L T A N T S



building
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Erik Kolderup, PE
LEED AP

ASHRAE Certified
Building Energy
Modeling Professional

erik@kolderupconsulting.com
www.kolderupconsulting.com
415.531.5198

Conservation Mechanical Systems, Inc.

Manufacturers Representatives of
Energy Conservation Products

Thomas S. Weaver, P.E. Principal
P: 510.741.9100 C: 707.529-3501

Tom@ConservationMechSys.com

732 Alfred Nobel Dr. Hercules, CA 94547

www.ConservationMechSys.com



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1614 Industrial Way, Ste. 104
Caldwell, ID 83605-6925

www.JohnsonThermal.com



AUDREY P. KEARNS
CHAPTER COORDINATOR

NORTHERN CALIFORNIA /HAWAII NEBB
A CHAPTER OF THE NATIONAL ENVIRONMENTAL BALANCING BUREAU

39899 BALENTINE DRIVE, SUITE 200 • NEWARK, CALIFORNIA 94560
(510) 386-1270 • (510) 438-6853 FAX
akearns@nocalhawaiinebb.org



**CALIFORNIA HYDRONICS
CORPORATION**

GARY HARBISON
Application Engineer, Business Development

Cell (415) 271-5261
Desk (510) 266-7806
gharbison@calhydro.com

2293 Tripaldi Way
Hayward, CA 94545

Phone (510) 293-1993
Fax (510) 293-3080
www.CHHydronics.com

Conrad Consulting
www.conradconsulting.biz

Chad Johnson, PE, LEED BD+C
Principal

Office 926.236.2350
Mobile 510.566.2194
chad@conradconsulting.biz

179 Pebble Place
San Ramon, CA 94583
USA



Renée Azerbegi, CEM, LEED-AP BD+C
President / Project Manager

DBE • WBE • WOSBE

201 Spear Street, Suite 1100, San Francisco, CA 94105
P: 415.946.4024 • C: 303.885.2695
Renee@ambient-e.com • www.ambient-e.com