

FOG DISPENSER



JANUARY 2014 DINNER MEETING

Joint Meeting With American Industrial Hygiene Association (AIHA)
& American Society of Safety Engineers (ASSE)

MAIN PROGRAM:

Evaluating Ventilation System Performance with Particle Counting Instruments

SPEAKERS:

JOHN MARTINELLI, Corporate Director of Healthcare Services, Forensic Analytical Consulting Services, Inc.

TOM LOPEZ, Health & Safety Technical Sales Specialist, TSI, Inc.



JOHN MARTINELLI: With more than 25 years experience in the field of Environmental Health, Mr. Martinelli has provided comprehensive hazmat assessments, project design and management to clients including various medical centers, schools, retail/commercial properties, housing and various public agencies. Mr. Martinelli also has extensive experience in training other professionals having delivered thousands of hours of health and safety training covering all aspects of hazardous materials abatement, exposure risk management, project management and design. Mr. Martinelli has presented on a variety of

healthcare topics to such regional and national associations as APIC, ASHE, Healthcare Design Expo and numerous CSHE Chapters.

continued on next page

THURSDAY, JANUARY 9
5:30 PM TO 9:00 PM

SPENGER'S FRESH FISH GROTTO
1919 Fourth Street
Berkeley, CA 94710
510.845.7777

AGENDA:

5:30 pm
Registration and Social Hour
6:30 pm
Dinner, Announcements and Introductions
7:30 pm Main Program
9:00 pm Adjourn

Register at www.ggashrae.org

COST:

GG ASHRAE Members,
Before 5pm, Jan. 3 \$43
After 5pm, Jan. 3 \$53

Non-Members, \$53

Students/Voucher Holder
Free, but please register

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GOLDEN GATE ASHRAE
FOG DISPENSER
VOLUME LII - NUMBER 4
JANUARY 2014 COVER



TOM LOPEZ: Tom Lopez represents TSI Incorporated's Health and Safety Group out of Tracy CA. He is an active member of the Nevada Mining Association's Health and Safety Committee and is working with TSI Engineering to develop a method of using photometers to measure Diesel Particulates in Real Time. Tom has a degree in Marketing from CA State University, Fresno and joined TSI 2 years ago from Henkel Technology where he served as an Adhesive and Sealants Specialist for 10 years.

PRESENTATION SUMMARY

John's topic of discussion: **Using Hand-held Laser Particle Counters to Evaluate HVAC Filtration Efficiency and Indoor Conditions during Construction in Sensitive Environments.** This session will discuss how real-time data collection using laser particle counters can be used to evaluate HVAC filtration. The session will use a case study to illustrate what indoor particle counts looked like compared to outdoor counts and to determine the effectiveness of engineering controls used to manage dust generated during construction projects in a hospital by taking measurements at key location prior to and during construction activities.

Tom's topic of discussion: **Getting the Data You Need with Particle Instruments – A Beginner's Guide to Understanding Photometers, Optical Particle Counters, and Condensing Particle Counters.**

2014 EVENT CALENDAR

► THURSDAY, JANUARY 9

5:30 PM – 9:00 PM

LOCATION: Spenger's Fresh Fish Grotto, Berkeley

TOPIC: Evaluating Ventilation System Performance with Particle Counting Instruments, joint meeting with AIHA and ASSE

SPEAKERS: John Martinelli and Tom Lopez

► THURSDAY, FEBRUARY 13

11:30 AM – 1:30 PM

LOCATION: PG&E Pacific Energy Center

TOPIC: Noise Control

SPEAKER: Brandon Wallace, BRD Noise & Vibration Control, Inc.

► THURSDAY, MARCH 13

5:30 PM – 9:00 PM

LOCATION: TBD, joint meeting with Redwood Empire

TOPIC AND SPEAKER TBD

► THURSDAY, APRIL 10

11:30 AM – 1:30 PM

LOCATION, TOPIC AND SPEAKER TBD

► THURSDAY, MAY 8

5:30 PM – 9:00 PM

LOCATION, PG&E Pacific Energy Center

TOPIC: Awards and Product Show

► THURSDAY, JUNE 12

5:30 PM – 9:00 PM

LOCATION: Scott's Seafood Jack London Square, Oakland

TOPIC: Golden Gate ASHRAE – Past, Present, and Future

SPEAKERS: Tom Gilbertson and YEA Chair



Hello Golden Gate ASHRAE Members!

By the time you read this message, the holiday season will be in full swing – on behalf of the Golden Gate ASHRAE Board and all the committee chairs, I would like to wish you all a Merry Christmas and a very Happy New Year 2014!

Any New Year resolutions for any of you? Apart from the usual resolutions about eating healthier and exercising more, what if we all take a little time to make this world a better place through better buildings? Or by saving a little more energy? We can all do something. Some simple things like changing just slightly the thermostat setting, be it in your house or where you work, or in buildings you're designing. Like getting dressed appropriately for the weather, and having indoors temperatures reflecting that. As my brother-in-law would say in winter, if you're cold, put on a sweater! I know I am slightly ranting and raving, but I have just been on vacation to Hawaii, and the airport terminal is so overcooled that I was cold in a tee-shirt...but it's wide open to the outside!! Crazy. What can I say? This is one of my pet peeves.

So, while I was enjoying warmer climes, you all had a great joint evening meeting with San Jose – thank you all for coming! Our January meeting is on Thursday 9th, and we will try a new venue – at Spenger's on 4th Street in Berkeley. This is a joint meeting with AIHA's Northern California Section (American Industrial Hygiene Association). Mark your calendar!

I hope also that many of you will be lucky enough to go to the ASHRAE meeting in New York – I can't wait to hear all about it in February from all of you who will attend. We are also proud to sponsor some students to go this year as usual.

Don't forget to start thinking about the ASHRAE Technology Awards – Chapter submissions will be due soon in the New Year – see the CTTC section for more details.

Until the New Year, Bonnes Fêtes de fin d'année et meilleurs vœux!

Isabelle Lavedrine

“ASHRAE” allows an HISTORICAL-look at an old industry that fathered much of what is used in our industry today.... “Railroading”

Tom Gilbertson, Chapter Historian

(Christmas and Hanukah are now over but in the spirit of RAILROADING ...the idea of a Model Train as a most suitable present is still in my head...in 1941 I received a used, Lionel “O-Gauge” Train Set!...as a Christmas Present...a very big deal!)

RAILROADING...the driving and enabling force in much of our Nation’s economy since the 1890’s...until 1940.... (about the same time span as our “ASHRAE”...nee ASHVE)...had a lot to do with the growth of our industry...and each other...the “Railroad” and “ASHRAE” grew hand-in-hand...

ASHRAE’s Golden Gate Chapter in San Francisco was right in the middle of the real railroading business....the Southern Pacific, the Western Pacific, the PFE...that’s “Pacific Fruit Express”...(they had over 10,000 “refrigerated cars”)... all three firms....headquartered in San Francisco....to be exact....all doing a considerable amount of business with our Chapter’s members. ...Refrigerated rail cars!...railway passenger car air-conditioning....and often simply just “heating”...These presented challenges and opportunities for our members.



Remember...in 1940 the Southern Pacific Railroad was the 5th largest company in the United States....and don’t forget that the Transcontinental Railroad was organized and run out of San Francisco....

The “**Railroad**” was a massive user of our technology...consider the “ice plants” for example...before we had compressors in the refrigerated rail cars...we had ice bunkers on each end of the “refrigerated” PFE car....and that evolved into “ground-drive refrigeration compressors”...compressors driven off mechanical connections to train car axels...think about having to tell the railroad engine designer how much added hp he had to have to be able to “pull” rail cars that each took a nominal 15 hp off each drive axel used to run the cars, one or two compressors...Finally the refrigerated rail cars from PFE used 50 hp reciprocating compressors...Makes our application engineering today...look pretty simple...*The ASHAE Guide*...(remember we didn’t add the “R” for Refrigeration until later).....as late as 1957 the GUIDE had a rather detailed description of “Transportation Air-conditioning”..... think of calculating A/C loads on passenger cars with surface velocities of 70 mph of 95 F air... and no Summer shade!...and conversely the heating load of the same 70 mph air velocity of -10 F air... By the way...The Harrah’s Car Collection in Reno was located in the old PFE-ice plant building...where the “ammonia refrigeration ice plant” made the 300 lb blocks of what we call “railroad ice”.

Boilers...a big deal for the railroad...even when the engines went to diesel...basically after WWII... the diesel locomotives had a separate steam boiler to heat the cars...Anybody remember the term “railroad boiler”?...I had two of them running a steam absorption A/C system on the 450 Sansome Street Building...very tricky boilers...as they were designed with very small boiler volume...and almost constantly went off on “over-pressure” when the load throttled-back...drove us crazy!!

The “**Romance of Railroading**” competed for mechanical designers...and growing up on the main line of the CB&Q I had the chance to see...and “feel” the throb of those big, steam powered 4-8-4’s...and to understand the Doppler effect as the steam engine’s whine first came at you...and then dropped to the lower pitch when the engine passed...and never forgetting the mournful wail of the train whistle...telling you that someone was going somewhere...every kid “knew” that the 4-8-4 meant “eight” drivers...and that those 84-inch diameter drivers would create beautiful “flat” pennies...if you could find them after the engine passed...and they didn’t catch you...

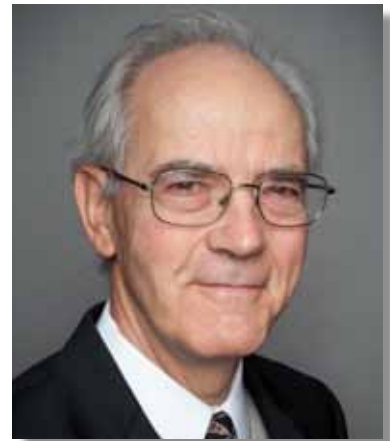
The “**CB&Q**”...that’s the “Chicago, Burlington & Quincy”...in the 1930’s the fastest way from Chicago to Minneapolis/St Paul... with the “Twin Zephyrs”...with stops they still averaged over 65 mph...and on the Mississippi River-Roadbed they hit 110 mph...and sustained the speed for nearly 60 miles...we had pretty “high-speed rail” in the 1930’s...and history attempts to repeat itself...(ACELA has recently run 150 mph on parts of the Boston-New York run...)...now we may have California High Speed Rail??

The “Father” of the “water-cooled package air-conditioning unit”...the one designed for use in the original Chrysler Building in New York in the 1930’s...Walter P. Chrysler ...made his name as the most talented person able to “set” the valves on a railroad steam engine for maximum speed...while working in the rail yard at Oelwein, Iowa in 1908...

Air-conditioning - Railroads and ASHRAE...are historically intertwined!

Encountering the Building Codes without Fear

Rick Paillon, PE
Golden Gate ASHRAE Past President



As professionals we are required to follow all applicable legal codes when designing and constructing our projects. When we deviate from the codes there is a plan checker, building inspector or fire marshal who will point this out. However it is expected that our designs already reflect the codes and that the building officials only verify that we have complied and point out minor (we hope) discrepancies. When we make a fundamental code omission in our design it can cause a lengthy delay in getting our project redesigned and approved, leading to unhappy clients and employers.

I am writing a series of articles for the Fog Dispenser to heighten your awareness about the codes and to suggest a path to gain knowledge of the codes that apply to HVAC design. It may occur to you that the architect and structural engineer will handle the Building Code compliance; the electrical engineer, the electrical code compliance; the mechanical engineer, the mechanical code compliance; etc., so that the only code you have to worry about is the mechanical code. This gives a good start on learning the codes but there are provisions in all of the above codes that apply to mechanical systems.

Here is a non-comprehensive list of codes that give requirements for mechanical systems:

Title 24, California State Code of Regulations

- Part 2 California Building Code
- Part 3 California Electrical Code
- Part 4 California Mechanical Code
- Part 5 California Plumbing Code
- Part 6 California Energy Code
- Part 9 California Fire Code
- Part 11 California Green Building Code

Plus the additions and amendments to the above codes made by the local jurisdiction where your project is located.

Title 8, /Cal/OSHA Regulations

Local Air Quality Management District Controls

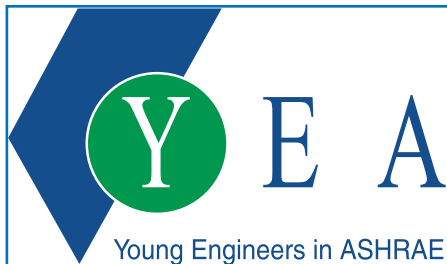
In addition to the above codes there are numerous NFPA Codes and Standards, UL Standards, ASHRAE Standards, and SMACNA Standards that are referenced in the above codes. For manufacturing facilities there are additional codes governing hazardous materials that come into play.

If the above information is new to you, you should get started on this fundamental part of your engineering education. It is both harder and easier to do that today than forty years ago when I began my HVAC engineering career. I started out on my first job by taking the mechanical code home with me every night for a week and reading most of the chapters to familiarize myself with the all the topics covered. Fortunately I didn't have to buy the code myself. A hard copy of the mechanical code today costs \$107 from IAPMO. The good news is that all of the above California Codes are available for free online, (<http://www.bsc.ca.gov/codes.aspx>). The thing that makes it harder for you to start learning about the codes is that they are several times longer than the 1974 codes that I started with.

The NFPA standards are also accessible on line for free, (<http://www.nfpa.org/codes-and-standards/free-access>). Also, some of the UL listings are online, (<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/fireessrch.html>).

Don't try to memorize any part of the code, just try to remember code topics and the general code topography so that you can quickly consult the code when you need to. There are two reasons for this. The first is that your memory is subject to failure but the most compelling reason is that the codes change over time and it is necessary to periodically refresh your knowledge and brush up on the changes.

When you begin schematic design of a project it is not a bad idea to do a code review for the specific project to determine the code issues that will affect the cost of the construction as well as require space for compliance.



The Young Engineers of ASHRAE (YEA) is committed to encourage participation from our Golden Gate members 35 years old and below. Please contact John Gardner (JGardner@victaulic.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: [Golden Gate YEA](#) is on Facebook!



YEA Ugly Sweater Bar Crawl

On December 19th, YEA members came out to Polk Street to celebrate the holidays. Pictures included below of the group having fun!



Upcoming event on Title24

On January 16th, 2014 from 6:00PM to 8:30PM at the WSP's office on 405 Howard St the Golden Gate YEA committee will be hosting Mark Hydeman PE and Principal at Taylor Engineering to conduct a seminar covering updates on Title24 and how YEA members can get involved in California policy.

Topics to be covered:

- Overview of Title 24
- Overview of the New HVAC & Process Requirements
- Complying & Documenting Title 24
 - *Overview of the HVAC Acceptance Tests & HVAC Compliance Forms*
 - *Responsibly parties for documentation*
 - *Process and milestones during construction*
- What can young engineers do to become more involved in Title 24?

There will be an EventBrite email invite sent out to everyone shortly please RSVP through. If you are not on the list please email jgardner@victaulic.com

Hope to see you there.



***Christopher Daniel,
ASHRAE Golden Gate CTT Co- Chair***

Christine Lee, ASHRAE Golden Gate Co-Chair

Technology Awards

The ASHRAE Golden Gate chapter is now accepting applications for the 2014 Technology Awards. If you have a project and/or building in which you have participated in the design process please submit an application for your deserved recognition.

ASHRAE Technology Award applications are accepted in each of the following categories:

- I. Commercial Buildings (New and Existing)
- II. Institutional Buildings (New and Existing)
 - Educational Facilities
 - Other Institutional
- III. Health Care Facilities (New and Existing)
- IV. Industrial Facilities or Processes (New and Existing)
- V. Public Assembly Facilities (New and Existing)
- VI. Residential (New and Existing)

Deadlines for the Golden Gate Chapter applications will be March 31st.

Please do not hesitate to contact Christopher Daniel at cdaniel@accoes.com or 415.889.9772 or Christine Lee at christine.lee@arup.com.

MARBLE DRAW



We are always looking for sponsors for our meetings. Please contact us if you are interested in sponsoring the prizes for future meetings. If your company donates prizes, your company's logo will display on a slideshow during the non-speaker portions of the meeting. You'll also know that your firm helped to fund ASHRAE research and scholarships!

***For more details contact Kevin Edstrom,
Kevin.Edstrom@wspgroup.com***



Nikola Kravik, Membership Promotion Chair

Holiday Greetings everyone!

I encourage everyone to attend the upcoming January meeting on Thursday, the 9th. We will try a new venue – at Spenger's on 4th Street in Berkeley. This is a joint meeting with AIHA's Northern California Section (American Industrial Hygiene Association). Mark your calendar!

Remember that you have a chance to get a free meal: if you bring a non-member to dinner and they join Society and the Chapter by the following chapter meeting you will get your next meeting on us!

Since last time I gave you an update a month ago, we have 5 new members and 1 new student:

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

ASSOCIATE

Xing Chen

Bill Jones

Mark Goldberg

MEMBER

Steve Salzman

Uwe J Springborn

STUDENT

Caroline Karmann

To become a member of the Golden Gate Chapter you must first be a Society member (www.ashrae.org/membership/page/589). If you are currently a member of Society and wish to join the Chapter, you can synchronize your renewal dates by paying pro-rated Chapter dues. Society membership is \$190 for Affiliates, Associates and Members and \$20 for students; Chapter membership is \$50 for Affiliates, Associates and Members and \$20 for students. Full time students dine free all year and Student Transfer membership allows you to maintain a reduced membership for the two years following graduation. Contact me for more information (nkravik@willdan.com).

ASHRAE's SmartStart Program



I want to remind everyone about the effort for the SmartStart student program I mentioned in our last newsletter - be different - if you know a student and he is wondering what's next help him with the ASHRAE SmartStart program, more details here. For \$120 it's the best money spent of them and 3 yrs of networking that people forget and students need it the most!

If you are interested, contact me personally and I will discuss the stories of at least 5 examples of recent graduates and students that have benefited

in many ways from joining Golden Gate ASHRAE, Redwood Empire or the San Jose Chapter .

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

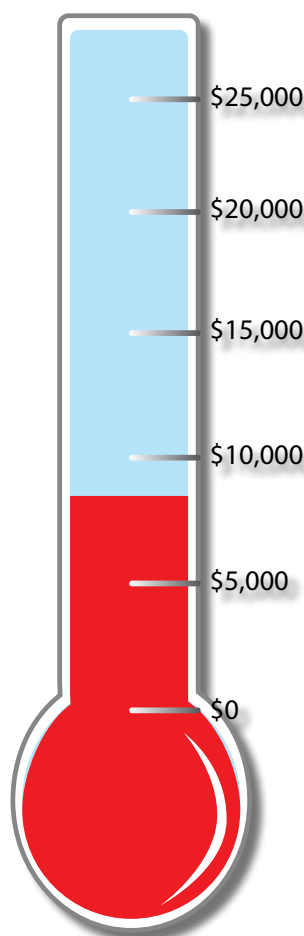


Zberri Alvi Research Promotion Chair

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Following individuals and companies have generously supported ASHRAE Research and Golden Gate Chapter for the 2013-14 Campaign.

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



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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 Zberri Alvi at (510) 206-9905, zalvi@dmgn.com

Our goal for this year is to raise \$24,500 for ASHRAE Research

Goal: \$24,500 Contributions: \$8,051



John Williams, Student Activities Chair

Student Scholarships

Each year the Golden Gate Chapter awards scholarships. Please contact me for further information and an application form. We look forward to receiving your application.

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ANNOUNCEMENTS

New Course on Building Codes for Mechanical Engineers

This spring UC Berkeley Extension is offering a course for mechanical engineers: **HVAC Mechanical Design Codes**. Learn the California mechanical code and related building, plumbing, electrical and fire codes that affect HVAC designs. Understand HVAC related codes, and acquire the skills to obtain design approvals from relevant government agencies. Examine practical design examples and understand how to apply relevant codes to meet mechanical and electrical code requirements and Cal/OSHA. (Please note, the California Energy Code is not included.) Instructor: Richard Paillon, PE

- X415 (1 semester unit in Mechanical Engineering)
- 5 meetings.
- March 4 through April 1, 2014; Tuesdays, 6:30 to 9:30 pm
- UC Berkeley Extension Downtown Center. 425 Market St., 8th Floor, San Francisco, CA 94105
- \$495

For the most current information go to:

<http://extension.berkeley.edu/search/publicCourseSearchDetails.do?method=load&courseId=40505>

ASHRAE High Performance Buildings Conference in San Francisco

Monday-Tuesday, April 7-8, 2014

Hyatt Fisherman's Wharf

San Francisco, California

The conference topics provide a comprehensive overview of high performance building design with a focus on strategies in several areas. New subject areas include water efficiency, building occupant behavior, new building technologies and indoor environmental quality. In addition, there is increased emphasis on lighting/daylighting and the building envelope.

Submissions of poster presentations are due February 21, 2014

For more info see: <http://www.hpbmagazine.org/hpb2014>.

ASHRAE Publishes 2013 Version of Thermal Comfort Standard

Major revisions for design and measurement of comfortable spaces are included in a newly published 2013 standard from ASHRAE.

ANSI/ASHRAE Standard 55-2013, Thermal Environmental Conditions for Human Occupancy, combines the 2010 standard and 18 published addenda into a consolidated standard. The core of the standard in Sections 4 and 5 specifies methods to determine thermal environmental conditions (temperature, humidity, air speed and radiant effects) in buildings and other spaces that a significant proportion of the occupants will find acceptable at a certain metabolic rate and clothing level.

Section 7 of the standard includes new requirements for the measurement and evaluation of existing thermal environments and is also applicable to commissioning.

ASHRAE Offers First Opportunity To Comment On Proposed Guideline For Commissioning Existing Systems, Assemblies

With functional changes and occupant productivity driving the need to commission existing facilities, ASHRAE is developing a guideline that addresses the commissioning process. The guideline is now open for public input.

ASHRAE Guideline 0.2P, The Commissioning Process for Existing Systems and Assemblies, describes the procedures, methods, documentation, requirements and physical activities of the commissioning process for existing buildings, systems and assemblies using the principles developed in ASHRAE Guideline 0-2005, The Commissioning Process.

The proposed guideline is open for public comment from Dec. 6 until Jan. 20, 2014. For more information, visit www.ashrae.org/publicreviews.

DECEMBER MEETING RECAP



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