

Sol Air

Newsletter of the Southern California Chapter: American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
September 2005

Web site: www.ashrae-socal.org

Vol. 51, No. 1

MEMBERSHIP NIGHT SEPTEMBER 13, 2005 MEETING INFO

LES FRERES TAIX

1911 Sunset Blvd., Los Angeles, California

5:30 Tech Program: Chapter Welcome and Orientation

**Speaker: Chapter President
Chad Herrick, P.E.**

6:05 Social Hour (Fun Time!)

6:45 Dinner

\$27 with reservation

\$30 without reservation

\$10 student member

Meal choice will be salmon or chicken

**7:45 Main Program: Bridging the gap between
ASHRAE Chapters and the Society**

**Speaker: Mr. Kent Peterson, P.E. P2S
Engineers, ASHRAE President FY2008**

9:00 Meeting Adjourns

Reservations: Dale Au (626) 961-9640

Fax (626) 961-9041 by Monday, September 12, 2005

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SEPTEMBER MAIN PROGRAM

Speaker: Mr. Kent Peterson, P.E.



Our guest speaker in September will be discussing current ASHRAE membership benefits and how they relate to you. Have you ever wondered how your membership dues are utilized, what benefits are available or how you can have a voice in this wonderful technical organization? The presentation will

focus on all aspects of membership services and programs, explaining how our members make a difference in our industry and how you can participate.

Mr. Peterson will also assist in bridging the gap between the Society and chapters by explaining this vital relationship. He will provide an overview of how the Society operates and the current strategic direction of the Society.

Mr. Peterson has been involved in all aspects of consulting engineering services and has a reputation for providing creative design solutions. He has over twenty years of experience working in consulting engineering. He is the Chief Engineer/Vice President and a founding principal of P2S Engineering in Long Beach, California. His experience encompasses all project phases from feasibility studies through system testing and commissioning. He is a member of the California State University Mechanical Review Board.

Mr. Peterson is an active member of ASHRAE. He currently serves as Society Treasurer. He chairs both the Finance Committee and the Planning Committee. He serves on the Board of Directors and the Executive Committee. He has chaired both committees and councils including; Technology Council, the ASHRAE Learning Institute, Student Activities Committee, Board Planning Committee, Society Rules Committee and numerous ad hoc committees. He is a corresponding member of ASHRAE TC 9.11, Clean Spaces, and a past member of several technical committees. Mr. Peterson has authored a number of papers and articles and is an ASHRAE Distinguished Lecturer.



Chad's Chat

*President
Chad Herrick*

I would like to officially welcome all of the current, new, future Chapter members and other Professionals in the HVAC industry to the start of another ASHRAE Chapter year. Time passes so quickly and what was once the beginning of our summer recess is now the beginning of fall and another ASHRAE year. The Board of Directors and Committee Chairs of the Southern California Chapter have been hard at work planning the coming year and we hope to continue the proud tradition of our Chapter through support of Student Scholarships, ASHARE Research, Chapter Programs and continued service to our members.

This year we will see a few changes including a remodeled Web site. Karine Leblanc one of our Directors, has been leading the way on this project. Her effort and enthusiasm are greatly appreciated and we can look forward to Web site cable providing better member service. Want to know more? Check the article in this issue of the *Sol*Air*.

Providing quality programs is also a prime objective and David Kuo, our President-Elect, has confirmed most-if not all-of the coming year's Technical and Main meeting programs. I encourage you to review the program lineup starting on page 9 in this issue of *Sol*Air*. You also may have noticed an email announcement with an opportunity for you or your company to save dollars by paying for the monthly meetings in advance. You can purchase in advance all eight regular Chapter meetings for the price of seven if you act now. Simply bring a check for \$189 to the first meeting and this will prepay your admission for all eight regular Chapter meetings. If you are a company Principal or Manager and wish to purchase prepaid tickets for guests to be named later, these arrangements can be made as well. Not only will this change save you money, we hope that it will alleviate the long check in times for our meetings.

Finally, I would like to remind everyone that our Chapter is a fellowship of professionals who come together to better our industry as a whole. I encourage everyone to get involved and learn more about the Chapter operations and what areas they may want to

serve. We grow stronger and more effective through the contributions of all of our members including you.

SEPTEMBER PRESENTATION: CHAPTER WELCOME AND ORIENTATION

Speaker: Chad Herrick, P.E.

If you would like to learn more about Chapter Operations, Committees and what we do, please attend the September Technical Session prior to the main meeting. I know this is a deviation from our traditional nuts and bolts engineering topics, but we feel it is worthwhile to help the Chapter members have a better understanding of the Chapter's organization and what opportunities are available to those who are willing to serve.

If you are interested in becoming more involved, or if you just want to learn more about the Chapter, it's history and who's who, then plan on attending.

Mr. Chad Herrick, P.E. graduated with a B.S. in Mechanical Engineering from California State University, Fresno. He is a registered engineer in the state of California with over ten years experience in the HVAC industry. He is currently a project manager with Western Allied Corp. He is married to wife, Gina, and they have a two-year old daughter, Brooke. Mr. Herrick also enjoys underwater photography.

THE MARBLE GAME

By Chad Herrick, P.E.

One of the most important things we do as a Chapter is raise money for ASHRAE Research. The impact of Research done by Society Members on our everyday lives, and as professionals in the HVAC industry, cannot be overstated and our support through monetary contributions is necessary. This year, to help raise awareness about Research contributions and their importance, the Board has decided to institute a fun fundraiser that will work in conjunction with our monthly meeting raffle. Lacking some catchy title, we have been referring to it as the Marble Game and we hope that it will generate not only funds for research, but some excitement at the meetings as well. Here is how it will work.

At every meeting we have a raffle wherein members buy tickets for a chance to win various prizes, that have been donated by Chapter Members or companies. For the Marble Game, we will take 20% of the Raffle money that is collected at each meeting and place it in a

progressive pot. One lucky individual will have the chance to win 50% of the money while the other 50% is to be donated to research.

There are eight Chapter meetings during the year and one joint meeting held with our Sister Chapters in the Orange and Tri County areas. For logistical purposes, we will omit the joint meeting from this process and we will focus on the other eight.

At the end of the raffle at each of the eight meetings, we will draw one final raffle ticket. The holder of this selected raffle ticket will then have the opportunity to draw one marble from a bag that contains eight marbles (one for each meeting). Seven of the marbles will be of one color and the eighth marble will be some different color not matching the other seven. If you draw the odd colored marble then you win 50% of the money in the progressive pot while the other 50% of the money is donated to research. If one of the seven same colored marbles is selected, then that marble is permanently removed from the bag and the kitty is rolled over to the next months meeting where we will again add 20% of the meeting's raffle money to the progressive pot. This process will continue each month until there is a winner. Should we have a winner before the end of the year, we will start the whole process over again and simply reduce the total number of marbles to match the number of remaining meetings.

We believe that this will be a fun way to generate interest and extra dollars for ASHRAE research. To help get us off on the right foot, the Chapter will donate \$50 to the progressive pot at the start of the first meeting.

We wish you all good luck and look forward to seeing you on September 13th.

ASHRAE DINNER MENU SURVEY

The Chapter membership has spoken. The dinner survey results are in and we have a clear winner.

1st place --- **Fresh Filet of Salmon (Grilled)**

2nd place --- **Sole Meuniere**

3rd place (tie) --- **Coq Au Vin and Beef Bourguignon**

We will do our best to provide gastronomic diversity at the meetings while keeping prices reasonable. Bon Appétit.

FREE DINNER



Buy 7 Ashrae monthly meeting dinners and get one free!

Bring a check for \$189 at the first meeting Sept 13th and save!



OIL-FREE COMPRESSOR TECHNOLOGY

By Doug Sallade

Our industry has seen a number dramatic changes in the recent past (i.e. Variable Frequency Drive, Direct Digital Controls, etc.), and these changes have provided improved system reliability and energy savings. Well, prepare yourself for the next chapter in dramatic changes, I'm speaking of oil-less compressors. As I'm sure you are aware, oil is a necessary evil in refrigeration and air conditioning systems. We need it to lubricate the moving parts of the compressor, but the oil quite naturally leaves the compressor with the refrigerant (misability). Getting this oil back to the compressor is the everyday challenge we all face and this problem is especially acute in low- temp refrigeration systems. If we could just find some way to get the oil out of the system and still have the compressor operate properly. Research indicates that oil related issues account for 60-70% of all compressor failures. Obviously, removing the need for oil lubrication would add greatly to the reliability and improve overall system efficiency (improved heat transfer in the evaporator and condenser). Additionally, system piping becomes much more simple. The necessity for P-traps and those nasty double suction risers goes away!

There are a number of technologies that are solving (or show the potential of solving) the oil problem in air conditioning and refrigeration systems.

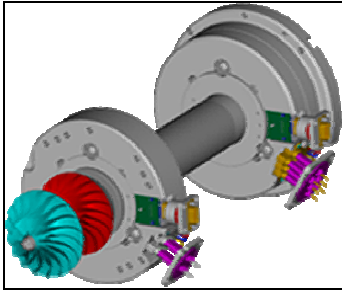


Trane ceramic bearing

One rather low tech possibility is ceramic bearings. The configuration is the same as standard roller bearings, however, the steel ball has been replaced with a ceramic ball.

Trane is currently using this technology on some of their centrifugal compressors. This technology is promising because

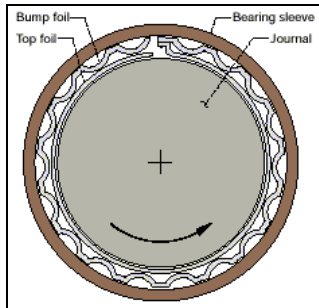
it offers a relatively low-cost solution to the "oil problem." The ceramic ball is extremely durable and simply improves existing roller-bearing technology.



Danfoss Turbocor magnetic bearing assembly

Another oil-free technology is magnetic bearings. In this arrangement, the rotor floats in a cushion of magnetism. The spinning rotor does not come in contact with any stationary part, therefore, the need for lubrication is no longer necessary.

Danfoss Turbocor have incorporated magnetic bearings in their small tonnage (60- to 120-ton) centrifugal compressors.



Air Foil bearing - NASA

Air foil bearings offer the possibility of oil free operation, but have not been incorporated into any products in our industry. Like magnetic bearing technology, air bearings have been used in the aerospace industry for many years. Similar to magnetic bearings, the

rotor of the air bearing “floats”. In this arrangement, a cushion of high pressure air is used to keep the rotor levitated and away from stationary parts.

Doug Sallade is the Department Chairman of the Air Conditioning and Refrigeration Program at Cypress College. He is a graduate of Cal Poly San Luis Obispo with 25 years experience in the HVAC industry. In addition to his duties at Cypress College, he is also an instructor for Danfoss Turbocor.



July 2005 Turbocor 120-ton Compressor Installation in the City of Commerce

UPCOMING SEMINARS

2005 Title 24 Energy Standards for Nonresidential Buildings

This seminar will provide a review of the basic requirements, and will highlight what's new in 2005.

- ❖ Date: Wednesday, September 21
- ❖ Time: 8:30 a.m. - 3:30 p.m.
- ❖ Location: Edison CTAC, 6090 N. Irwindale Ave., Irwindale, CA 91702
- ❖ Complimentary lunch
- ❖ No fee for attendance
- ❖ Register by calling 800-336-2822 or by clicking here:
- ❖ <http://www.sce.com/RebatesandSavings/EnergyCenters/CTAC/workshops/fulldescription.html>

Thermal Displacement Ventilation and Underfloor Air Distribution

This course provides architects and engineers with a graphic compelling case for thermal displacement ventilation and underfloor air distribution technologies.

- ❖ Date: Thursday, September 29
- ❖ Time: 9:00 a.m. - 12:00 p.m.
- ❖ Location: Gas Company's ERC, 9240 Firestone Blvd., Downey, CA
- ❖ Check-in and continental breakfast at 8:00 a.m.
- ❖ No fee for attendance
- ❖ Register by calling 800-427-6584 or by clicking here:
- ❖ https://seminars.socalgas.com/iebms/reg/reg_p1_for_m.aspx?ct=REGISTER&oc=01&eventid=14131

Boiler Water Treatment for Energy Efficiency

Learn how correct water treatment can increase operating efficiency. Find out how to protect boilers from corrosion, scale, and biological fouling.

- ❖ Date: Thursday, September 15
- ❖ Time: 9:00 a.m. - 3:00 p.m.
- ❖ Location: Location: Gas Company's ERC, 9240 Firestone Blvd., Downey, CA
- ❖ Check-in and continental breakfast at 8:30
- ❖ No fee for attendance
- ❖ Register by calling 800-427-6584 or by clicking here:
- ❖ https://seminars.socalgas.com/iebms/reg/reg_p1_form.aspx?ct=REGISTER&oc=01&eventid=12905

“WE GOT OURSELVES A BRAND NEW WEB SITE!!!”

By Karine Leblanc



ASHRAE SoCal chapter is pleased to announce their NEW Web site. I personally got the drive when we went to the CRC in Hawaii last May and I over heard someone from a different chapter, when the category of the best Web site was announced, *“it’s going to be Golden Gate Chapter again, they always win!”* Well, I thought that it would nice to give them some competition but above all, provide a new improved and up-to-date Web site to better serve our members.

If you would take two minutes of your time to look at our new project, you will be able to see an organized and user friendly Web site. To start, the home page shows the next meeting date and complete information. You will find the ASHRAE Society, the Region X and the local chapter’s Web site for any information about their activities. And to make sure we are up to date with the latest news from ASHRAE society, we have a “News Feed Bar” that is updated daily with Atlanta ASHRAE News.

The monthly meetings are under a calendar form including all the information on each meeting, theme, speaker, time, location, reservations, etc. The beauty of this calendar is that it can be downloaded into your personal Microsoft Outlook and it will automatically be part of your new agenda. So you will be sure to get reminded about our meetings and more.

Also, in our calendar of events section, you will find information for the upcoming year on our seminars, golf tournaments, tours, trips, special activities, etc. In addition to all of this, we have a section on student activities that will announce the upcoming activities for the engineering week and presentations that will be offered to students. It presently shows pictures of the last

events, student resumes, etc. Under the same page, a table top menu has been added to the meetings for your information and maybe to get your participation as well.

We are working on adding the roster in the Web site that will be available to our members only. There is a lot more to come...keep browsing and make sure to bookmark our NEW Ashrae SoCal chapter Web site!!!

CYPRESS COLLEGE UPDATE

By Clay Lampman, P.E.

Cypress College, one of the nation’s top education providers for the air conditioning and refrigeration industry, is going through some changes. The retirement of one of the program founders, Wayne Freiman, resulted in a search for a replacement instructor.

Mr. Richard Hock was hired to fill that vacancy. Richard has a background in food service refrigeration and has over 20 years experience in equipment manufacturing, installation and service. Richard Hock joins Ron Trulock and Doug Sallade in continuing the program’s excellent reputation in producing new talent for the air conditioning and refrigeration industry. The Cypress College program is highly respected in the industry because of the hands-on method of instruction and a “learn-by-doing” philosophy. Students receive strong academic course work mixed with a large percentage of the instruction in a laboratory environment.

For many southland contractors, the two-year program is the source of qualified entry-level service technicians, estimators, project management, and sales trainees. Cypress College also has a transfer agreement with California State University of Los Angeles, for those students that want to complete a Bachelor’s degree program.

Cypress College has a current need for part-time instructors. The desired qualifications would include a Bachelor’s degree in engineering or air conditioning and refrigeration related fields, contracting, project management and /or controls background with strong hands-on mechanical ability.

If you are interested in applying for a part-time faculty position in the Air Conditioning and Refrigeration program, please contact the Vocational Technical Division at (714) 484-7231 or (714) 484-7255.

SUMMARY OF THE 2005 CHANGES TO THE CALIFORNIA ENERGY EFFICIENCY STANDARDS (PART 1)

Submitted by Clay Lampman

Standards Changes for all Building Types

Time Dependent Valuation (TDV) (§102). The basis of the performance standards calculations will change to time dependent valuation, substantially increasing the importance of measures that reduce peak electrical consumption relative to measures that impact energy use in off-peak periods.

Performance Requirements for Heat Rejection Equipment (§112, Table 112-G). Factory assembled cooling towers will be required to be certified by the Cooling Technology Institute to meet the requirements of CTI STD-201. There will be no certification requirements for field erected cooling towers.

Fenestration Default Values (§116). The default values for fenestration (windows, skylights, and glazed doors). U-factors and Solar Heat Gain Coefficients will be updated to agree with recently revised National Fenestration Rating Council test procedures.

Placement of Insulation at the Roof/Ceiling [§118(e)]. Insulation will be required to be placed directly in contact with a continuous roof or ceiling. Placement on top of a suspending ceiling with removeable ceiling panels will be deemed to have no insulative effect except in very limited situations.

Demising Walls in Nonresidential Building. The R-value for insulation between framing members of demising walls will be increased from R-11 to R-13.

Insulation for Heated-Slab Floors [§118(g)]. Minimum insulation levels, water absorption rates, and insulation protection requirements will be established for insulation used with heated-slab floors.

Cool Roofs [§118(l)]. The current requirements for cool roofs to qualify for compliance credit and to meet prescriptive and performance standards requirements will be moved to this location and expanded to allow a means for roofs with very high reflectance and lower emittance to qualify, and requirements for liquid applied roofing products will be revised to be more widely applicable to the range of available coatings.

Daylighting Controls (§119(e), (h) and (i)). Requirements to ensure the reliability of Automatic Daylighting Control Devices, Multi-Level Astronomical Time-Switch Controls, and Automatic MultiLevel Daylighting Controls will be added.

Standards Changes for Nonresidential, High-Rise Residential and Hotel/Motel Buildings

Mandatory Requirements

Natural Ventilation [§121(b)1]. Current requirements for natural ventilation will be clarified and the depth of spaces allowed to be naturally ventilated in high-rise residential dwelling units and hotel/motel guest rooms is extended to 25 feet.

Outdoor Air and Demand Control Ventilation [§121(c)1, 3, 4, and 5]. Demand control ventilation will not be allowed as an alternative to continuous ventilation when operations or processes are present that generate specified pollutants and exhaust ventilation is not provided. With the exception of the above situation, the current requirements for demand control ventilation will be expanded to include specific occupancies with moderate to high occupant densities, which have an outdoor air economizer. Demand control ventilation devices will have new performance requirements. Acceptance requirements will be established to insure demand control ventilation systems are tested before occupancy to determine that they meet Standards requirements. Minimum ventilation rates will be changed for bars, cocktail lounges, and casinos. Acceptance requirements also will be established to insure ventilation systems are tested before occupancy to determine that they meet Standards requirements.

Space Conditioning Controls Acceptance. [§122(h)]. Acceptance requirements also will be established to insure that space conditioning controls are tested before occupancy to determine that they meet Standards requirements.

Duct Insulation [§124(a) and (g)]. Duct insulation requirements for ducts in unconditioned or indirectly conditioned spaces will be increased to R-8. Flexible ducts having porous inner cores will not be allowed.

Mechanical System Acceptance [§125(a), (b), (c), and (d)]. Acceptance requirements also will be established to insure mechanical systems are tested before occupancy to determine that they meet Standards requirements, including air distribution system ducts and plenums, economizers, variable air volume systems, and hydronic system controls.

Indoor Lighting in High-rise Residential Living Quarters and Hotel/Motel Guest Rooms [§130(b)]. Lighting in these spaces will be required to meet the same new requirements for low-rise residential buildings in §150(k).

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**SOUTHERN CALIFORNIA CHAPTER
PROGRAM SCHEDULE****September 13, 2005: Membership Night**

Tech Program: Chapter Welcome and Orientation
Speaker: Chad Herrick
Main Program: Bridging the gap between ASHRAE
Chapter and Society
Speaker: Kent Peterson, P2S Engineers,
ASHRAE President FY2008

October 4, 2005: Energy Night

Tech Program: Air Duct Leakage - TAB Techniques
and Procedures
Speaker: Bob Conboy, American Air Balance
Main Program: Thermal Energy Storage in
Sustainable Buildings - TES and
LEED
Speaker: Mark M. MacCracken, CalMac,
ASHRAE Distinguished Lecturer

November 1, 2005: EGA / Code Compliance

Tech Program: eQUEST Energy Simulation,
Mechanical Perspective
Speaker: Marlin Addison, Professor ASU
Main Program: 2005 Title 24 Update Mechanical
Perspective / ASHRAE 90.2
Speakers: Gail Stranske, CTG Energetics

December 6, 2005: Past President's Night

Joint Meeting Hosted by: Orange Empire
Program Chair: Darren Smith, dsmith@accoes.com
Main Program: Ventilation and Health
Speaker: Jan Sundell, Technical University of
Denmark (ASHRAE DL)
Location: ERC in Downey

January 10, 2006: Research Night

Tech Program: Principles of Engineering Economics/
System Feasibility / LCC Analysis
Speaker: Ed Clancy, Cal Poly Pomona
Main Program: Tour of UCLA Cogeneration Facility
Speaker: Lucas Hyman, Goss Engineering
Location: UCLA

February 7, 2006: Membership Night

Tech Program: Good-Bye Division 15: The New &
Improved CSI Specification Format
Speaker: Michael Chusid, Chusid Associates
Main Program: Value Engineering, Cost Estimating -
Owners Perspective
Speaker: Timothy Ball, CSU Long Beach

March 7, 2006: QC Night

Tech Program: Commissioning Process. Developing
Cx Plan
Speaker: David Ellner, TRC-EASI
Main Program: Tools, Implementation Strategies,
Primary Variable Flow Case Study
Speakers: Scott Duncan, Retrofit Originality
Inc. and Craig Hofferber, H&P

April 4, 2006: Refrigeration Night

Tech Program: Tour of Miller Brewing Company
plant in Irwindale with a focus on
refrigeration system
Speaker: Allan Spear
Main Program: Energy Efficiency Update &
Electricity Supply Demand Outlook
Speakers: Gary Green, SCE
David Bruder, SCE
Location: SCE CTAC in Irwindale. Tour
scheduled for 4:30pm to 6:00pm.

May 2, 2006: Student Night

Tech Program: Showcase of successful Savings By Design energy efficient projects - local mechanical engineers panel

Speakers: Janith Johnson, SCE
Peter Simmonds, IBE Engineers
Eric Shamp, HMC Group

Main Program: Student Senior Project Poster Board Session and Presentation

Speakers: Jesse Maddren (Cal Poly SLO) and Students

June 2006

Installation Dinner/Dance

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Please make a donation of \$50 per ad made payable to: ASHRAE Southern California Chapter.

PART TIME SALES POSITION

Part time employment opportunity for retired, semi-retired HVAC person calling on mechanical engineering offices, Southern California area including San Diego.

Contact Bob Conboy 714/693-3700

PART TIME INSTRUCTORS

If you are interested in applying for a part-time faculty position in the Air Conditioning and Refrigeration program at Cypress College, please contact the Vocational Technical Division at (714) 484-7231 or (714) 484-7255.

For more details see article in this issue of *Sol*Air*.

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UPCOMING EVENTS

Orange Empire's ASHRAE Golf Tournament

October 24, 2005
Place: Alta Vista CC Placentia
Time: 12:00 Noon Shotgun Start
Fee: \$125/player includes cart and dinner
Contact: Jim Henry (jhenry@socal.rr.com)
Fax: 714-639-5499

2006 Winter Meeting Info

Free one-day passes are available for either the 2006 Winter (Chicago) or Annual (Quebec City) Meeting. This free pass is good for any member who has never attended an ASHRAE meeting. There is no limit to the number of people who can attend on the free-pass - the only criteria is that they have never attended an ASHRAE meeting.

If you would like further info, contact: Judy Marshall,
Manager of Meetings
Tel: 678-539-1173/ Fax: 404-321-5478
E-mail: jmarshall@ashrae.org

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