

SOL AIR

Newsletter of the Southern California Chapter: American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
November 2000 website: www.ashrae-socal.org Vol. 46, No. 3

NOVEMBER MEETING INFO

November 7, 2000 Research Night

Les Freres TAIX
1911 Sunset Blvd., Los Angeles, California

- 5:30 Tech Forum
Fundamentals of Thermodynamics
Speaker: Mr. Gerry Katz
NFEE
- 6:05 Social Hour (Fun Time!)
- 6:45 Dinner
\$23 with reservation
\$25 without reservation
\$10 student member
- 7:45 Main Program
Integrated Energy Design
Speakers: Mr. Tom Lunneberg, P.E.
Mr. Craig F. Hofferber
- 9:00 Meeting Ends

Please place reservations to Jennifer Farr,
(310) 671-6915, Fax (310) 671-1467 by
Monday, November 6, 2000.

NOVEMBER MAIN MEETING

Integrated Energy Design

Speakers: Tom Lunneberg, P.E. and Craig F. Hofferber

“Integrated Design” is a process in which all of the disciplines and elements of the design of a building are considered together, with the collective goal of improving building performance. Design teams that follow an integrated approach often produce buildings with better thermal and visual comfort, lower energy bills, and fewer operational problems than those built in the traditional manner.

Achievable integrated design is rooted in strong communication between the architectural and engineering disciplines

to develop design solutions that transcend the traditional barriers that impair building performance. For example, a successful daylighting system involves input and coordination between the architect (proper glazing selection), electrical engineer (appropriate controls and circuiting), mechanical engineer (adjusted heating and cooling loads), and the interior design architect (light paint and carpet finishes, as well as low partition heights, promote good light penetration). Failure to communicate on the part of any team member can jeopardize the performance of the system, or lead to increased construction cost.

Tom Lunneberg and Craig Hofferber will present an overview of the integrated design process. Together, they will identify the key steps of this process, show how it can affect building performance, and describe some specific examples of building systems affected by an integrated design. Come to this meeting and learn about how to successfully achieve, or participate in an integrated energy design for your project.

Mr. Lunneberg is the Manager of Energy Engineering for CTG Energetics, Inc. He is responsible for energy engineering activities including energy auditing, building energy simulation, and energy consulting. Mr. Lunneberg has extensive experience in the evaluation of energy projects for cost effectiveness and performance verification and has provided analysis for numerous commercial, municipal, military, institutional, and healthcare facilities.

Mr. Hofferber is the principal of CFH Systems. He has extensive experience in analysis, design, commissioning and troubleshooting of large HVAC systems. His experience includes the design, construction coordination and system commissioning for building systems at numerous commercial and institutional facilities. He has also been involved in the design of data distribution systems, both using fiber-optic and copper distribution media, and systems comprising the building infrastructure.

For additional information on Integrated Energy Design and other design resources, visit the Energy Design Resources website at <http://www.energydesignresources.com>.



President's Message

by Sudhir Agrawal

The Chapter is moving forward to best serve the members. Our members are working together as a team and performing their best efforts for the enhancement of the Chapter.

- Mike Gallagher - Stepped up and took Charge of the Main October Program when our original speaker had to excuse himself due to personal emergency.
- Mike Burke - Continued supporting the Chapter for membership, attendance, reception, raffles prizes, and paying for additional dinners.
- Will Clark - Accepted to be our Program Chair and providing his wealth of experience. He is lining up programs for the entire year with Bob Brennan.
- Cindy Callaway- Gets us proper recognition at the Society level by PAOE points input. She will update PAOE data on the Society forms after they become available.
- Bob Brennan- Continues his magic and focuses on Programs along with several other responsibilities. He is focusing his efforts to make the joint meeting successful. As you all know that our Society President Jim Wolf is coming out to give a technical speech. Bob is also setting up a program to train science teachers from various Junior High schools to eventually come to our industry.
- Victor Petring - Sends hundreds of faxes several times to provide you the latest information.
- Craig Hofferber - Keeps our Home Page updated with the latest information.
- Clay Lampman, Phil Trafton and Ed Schmidt - Provide their guidance to me through the ASHRAE policies on Chapter Operations. We are trying to locate ASHRAE Operations manuals through our past Directors to update them by January, 2001.
- Amar Amarnani- Ready to send our his first request for research Promotion contribution. All indications are there that we will meet our goals and make the full circle, a high level of recognition by the Society. November is going to be the Research Promotion Night. Please support Amar's efforts.
- Phil Trafton- As always keeps the scholarship investment funds intact in the right direction.

- Bob Woods- Our Treasurer is keeping our accounts straight with our tax auditor Sylvia Lane.
- Joe Ablay - His effort on the Newsletter *Sol*Air* cannot be expressed in words.
- Chad Herrick and Jerry Conklin are working in respective areas, without showing off.

Please keep in mind that November meeting is on the election day, remember to cast your ballot in advance.

By the time you all will receive this newsletter, a tour to Staple Center would have taken place. It is scheduled for October 24, 2000. Thanks to Bill Pottorff, the technical lead at Staples for such an opportunity to show our member's work.

As an encouragement to send new members to attend the semi-annual meetings, the Society has authorized me for a \$100 credit towards registration for the first time attendee at the winter meeting to be held at Atlanta on January 27 through 31. Please contact me if you are interested.

The distribution of scholarships took place in September and October to the students of various colleges under the leadership of Clay Lampman.

We have a good start on the Historian area. I have been promised that we will reach maximum allowable PAOE points in this area, as well.

There is a Commissioning - Performance Assurance workshop on November 20th at SCE- CTAC, sponsored by our Chapter through our technical committee CTC-11 (building commissioning).

We encourage your suggestions to improve the Chapter activities.

NOVEMBER TECH MEETING

Back to Middle School with Mr. Energy

Speaker: Mr. Jerry Katz

November's technical session will have you back in physical science class; this time your teacher is Mr. Energy (a.k.a. Jerry Katz, President of the National Foundation for Energy Education). Mr. Katz will be in from Reston, Virginia to conduct five workshops in southern California for an estimated 100 physical science teachers. The Southern California Chapter of ASHRAE is a workshop sponsor along with others from the HVAC&R industry.

The workshops will be held in November and are designed to help teachers, many who are not physical scientists, with science content and effective tools to enhance their instruct about internal and thermal energy.

During the technical session, Mr. Katz will discuss the California Science Education Standards for internal and thermal energy, and how members of the HVAC&R industry can help schools with meeting these standards. He will also be presenting several science demonstrations used during the teacher workshops; Chapter members will also be conducting several student investigations at their seats.

Mr. Katz has educated and entertained over 12,000 teachers during the past 22 years. His use of comedy, engaging demonstrations, and discussion about sound educational teaching strategies will make the session whiz by and have you wishing the bell to end the class period wouldn't ring.

WESTERN SECTION NOVEMBER MEETING

by: **Clay Lampman, P.E.**

The November meeting speaker will be Jim Reese, Vice President, Air Terminal Products, with York International, PA. Mr. Reese will talk about application of underfloor air conditioning distribution systems. His presentation will give you insight into how to apply underfloor air distribution in areas where supply has to be at each workstation within a large bullpen. Mister Reese has over 37 years of extensive experience in the airside business. The November 14 meeting will be in Santa Maria at the Mariann's Italian Villa, 800 South Broadway (exit Stowell Road off of Hwy 101 north), with social hour starting at 6:00 p.m., dinner at 6:30 p.m. and program at 7:30 p.m. You can E-mail your dinner reservations to Hugh McTernan at aecc@comunic.com or fax (805)653-7260 by noon November 13th. Indicate your dinner selection (fish, beef or chicken).



Bob Brennan and October Tech Presenter Fady Mattar.

OCTOBER TECH RECAP

Product Conveying Duct Systems

by: **Bob Brennan**

Last Tuesday, October 3, 2000, Fady Mattar, Building Official for the City of Long Beach (formerly with the County of Los Angeles) and our local Chapter Code Committee chairman, was the speaker in our technical forum. He presented to the membership an overview of the Code provisions covering 'Product Conveying Duct Systems'. The lecture was very interesting covering all aspects of this complicated subject that left some of our designers struggling with local building departments to obtain approval on their designs.

Environmental air duct systems, product duct systems and flammable vapor, fumes and dust collection systems were covered. One important issue that Fady raised was the distinct difference in the requirements when flammable vapors, fumes or dusts are diluted below a certain concentration, versus these same products when exhausted in their original concentration levels.

It was an enjoyable speech. Wish you were all there to enjoy it and benefit from Fady's presentation of the code official's point of view and what they

usually look for in reviewing submitted designs.

OCTOBER MEETING RECAP

Fix, Replace or Retrofit...

by: **Bob Brennan**

The October meeting program topic was "Fix, Replace, or Retrofit...Evaluating and Deciding a Course of Action". Mike Gallagher discussed a number of existing system considerations. In particular, the need to have actual field verification of system conditions and performance was discussed. The impact of cooling load and tenant use changes were discussed, along with recent electrical/communication building along with recent electrical/communication building upgrade trends. Control upgrades were examined. Two key points were the very high cost of fixing and repairing older DDC systems, and the determination of whether the building will go with DDC all the way to the zones. A menu "good-better-best" format for client presentation was discussed, along with some classic examples of systems and potential retrofits common in the L.A. area.



Bob Brennan and October Main Meeting Presenter Mike Gallagher.

WESTERN SECTION OCTOBER RECAP

Vibration Isolators

Speaker: Dan Robinson

Dan Robinson with M.W. Sausse' Company spoke about vibration isolation.

There were samples of the most common types of isolation for us to see and touch. Dan showed us that there are many different types of isolators and spring deflections to choose between depending on the specific application.

Most importantly, if the equipment is to be located on upper floors or the roof, the use of spring vibration isolators is more important.

RESEARCH NIGHT

by: Narendra Amarnani, P.E.

Southern California Chapter's meeting on 7-Nov-00 has been declared as Research Night. This night will be devoted to all those who have contributed during 1999-2000 to ASHRAE research. We shall be awarding recognition to the investors of various levels. All the research promotion participants are requested to attend the meeting to receive the awards.

Bob Levi-Regional Vice Chair shall be addressing the membership and briefing us on the state of other chapters in the Region X. Also, we shall be proudly introducing University of California Riverside faculty, Prof. Fitz and Prof. Welch who have been awarded ASHRAE research funds in this year. The faculty genuinely appreciates the efforts and contributions from the membership, which supports the applied research, set *to improve the quality of life*.

Contribution target for Southern California Chapter has been set at \$19,058 for this fiscal year. Last year a

vast majority of membership responded to our call for participation. We hope that all the last year's contributing members would continue to do so by adding \$5-\$10 to last year's amount. We appeal to all those members who have not been able to fit the ASHRAE research promotion into the budget to contribute ANY minimum amount possible. When you participate in the research efforts, it feels that you understand what ASHRAE stands for – *to answer tomorrow's questions through research today*. So, please contribute generously and at the minimum, contribute something. Thanks again for your support.

Please send your contributions to:
ASHRAE RESEARCH FUND
c/o Narendra Amarnani, P.E.
3255 S Sepulveda Blvd., #101,
Los Angeles, CA 90034
Tel. (323) 267-2441

We accept MasterCard and VISA.

2000-2001 ASHRAE RESEARCH PLAN

by: Narendra Amarnani, P.E.

The ASHRAE Research Plan for 2000-2001 was approved by the Research Administration Committee (RAC) at their 1999 Fall meeting in Atlanta. The following 34 ideas were given priority as those of the most immediate value to the Society.

Indoor Air Quality, Comfort and Health

- Determine the Effect of Duct Fittings on Air Velocity Measurements, TC 1.2
- Limiting Criteria for Human Exposure to Low Humidity, TC 2.1
- Detection And Removal Of Gaseous Effluents And Byproducts Of Microbial Growth That Affect Indoor Environments, TC 2.3

- The Effects of Ganging on Pollutant Dispersion from Building Exhaust, TC 4.3
- Modeling Low Velocity Large-Scale Fluctuating Flows, TC 4.10
- Displacement Ventilation Systems Within Industrial Facilities, TC 5.8

Design, Operation and Maintenance Tools

- Identification and Computer-Based Preservation of Building Design and Commissioning Information, TC 1.5
- Acoustical Impact of Aerodynamic Systems Effects, TC 2.6
- Standard Leak for HFC Leak Detectors and Room Controllers, TC 3.8
- Development Of Procedures To Utilize Automated Surface Observing System (ASOS) Weather Data In Building Energy Calculations, TC 4.2
- Update Energy Calculation Models for Residential HVAC Equipment, TC 4.7
- Integrated Control for Building Services, TC 4.11
- Characteristics of Room Air Jets in the 4th Zone, TC 5.3
- Water-Side Fouling Inside Smooth And Augmented Copper Alloy Condenser Tubes In Cooling Water Applications, TC 8.5

Environmentally Safe Materials

- Measurements And Model Development For Five R-400 Series Refrigerants, TC 3.1
- Effect Of System Materials towards the Breakdown of POE Lubricants and HFC Refrigerants, TC 3.2
- Mechanism for Reaction Between Polyester Lubricant and Ferrous Metals, TC 3.2

- Distribution of Water Vapor and Liquid Phases of Refrigerants, TC 3.3
- Measurement of Solubility, Viscosity and Density of R-125/143a (50/50) (R-507 Series) Refrigerant/Lubricant Mixtures, TC 3.4

Energy Conservation

- Field Performance Assessment of VAV Control Systems before And After Commissioning, TC 1.4
- Update Of ASHRAE Manual of Heat Transmission Coefficients for Walls, Roofs, Ceilings and Floors, TC 4.4
- Advance the State Of the Art in Duct Leakage Testing, TC 6.3
- Development of Evaluation and Rating Parameters for Hybrid HVAC Systems and Their Testing, TC 6.4
- Ice Slurry Design Data for Thermal Storage, TC 6.9
- Thermodynamic Enhancement of Mechanical Dehumidification Process by the Use of Wrap Around Heat Pipes, TC 7.5

Fire and Safety

- Scale Modeling of Atria Smoke Management, TC 5.6
- Tenability and Open Doors in Pressurized Stairwells, TC 5.6

Refrigeration Systems

- In-Tube Condensation of Ammonia in Smooth and Enhanced Tubes with And Without Oil, TC 1.3
- Performance Of Short Tube Restrictors With Alternative Refrigerants, TC 8.8
- Field Measurement of Pressure Drop for Two-Phase Ammonia Flow in Large Horizontal Pipes, TC 10.3

High Risk, Innovative and Emerging Technologies

- Refrigerant Flow Mal-Distribution Control Using the EHD Technique, TC 1.3
- Evaluation of Biofiltration of Air, An Innovative Air Pollution Control Technology: Phase II, TC 2.3
- Numerical Acoustics for HVAC Noise Control, TC 2.6
- Use Of Grey Water As Make-Up For Evaporative Cooling Systems, TC 3.6

List of Contributors

Alejandre, Eddie	Klinger, Barney
Bogart, Arnold	Lampman, Clayton
Brink, Lawrence	Loman, Richard
Brooks, Charles	McKelvey, Thomas
Burke, Michael	Morton, Ray
Dekreek, Gerrit	Paulson, Kathleen
Demergian, Haig	Perez, David
Denny, Vernon	Price, Gary
Dorius, John	Raleigh, William
Erhman, Sally	Reuter, John
Gilbert, Richard	Richter, Charles
Gray, Edward	Saltzberg, Edward
Heisler, Robert	Smilo, Martin
Horsfield, Louis	Spence, Thomas
Kelly, Elbert	Sun, Tseng-Tao
Khacherian, Fred	Szalay, Glenn
Kheel, Joshua	Yung, Yiufai



Fady Mattar, Louis Horsefield and Sudhir Agrawal.



Southern California Edison (SCE) offers its newest addition on the Web.

Introducing

Showcasing Energy Efficiency

www.sce.com/showcasing-energy-efficiency

This site promotes innovative, energy-efficient technologies and design solutions.

Learn how homes and businesses are saving money through energy efficiency.

Check it out and bookmark it for future reference.

TECHNICAL FORUM SECTION

Proper Selection of Air Filtration Equipment Plays a Significant Role in Energy Conservation

by: Mike Burke

Low initial pressure drop and low time weighted average pressure drop are key elements in reducing energy costs associated with air filtration equipment.

Most air handling equipment and built up systems are equipped with filter gages, indicating pressure drop

throughout the useful life of the filtration system. However, little attention is given to the significance of those readings other than that of change out points for the respective air filters.

A system handling 50,000 CFM at a pressure drop of 1.5" Wg. across filter bank is required to overcome a resistance equivalent to 7.8 pounds per square foot or a total pressure of 780 pounds (100 square feet, filter area).

Horsepower Equivalent= 20 or 15 KW
Annual Operating Time= 8760 hours
= 131,400 KWH
Annual Operating Costs at \$.10/KW
= \$13,140 per year
Energy Costs per Filter= \$525.60

Energy costs per filter in the above scenario are significant however these costs may be lowered proportionally by reducing initial pressure drop and time weighted average pressure drop. The process of selecting filtration equipment in an effort to optimize energy savings is often confused or distorted because of data published by air filter manufacturers entitled "Recommended Final Pressure Drop". "Recommended Final Pressure Drop" is a misnomer and should be interrupted as "Don't Run the Filter Beyond This Point", in fact most filters will have an optimal change out point considerably lower than the manufacturer's "Recommended Final Pressure Drop".

There are four factors that should be considered when evaluating the energy implications of filtration equipment.

Initial pressure drop and time weighted average pressure drop.

- Dust loading profile of the filter.
- Dust holding capacity of the filter.
- Challenge to the filter.

Initial pressure drop and time

weighted average pressure drop are synonymous with energy. The dust loading profile of the filter is reflective of its reaction to air flow, challenge and time. Dust loading capacity is simply the amount of dust held at a predetermined end point. Challenge to the filter is normally expressed in micrograms per cubic meter, total challenge is determined by multiplying challenge and time.

In most instances, energy attributable to filtration equipment may be considerably reduced by an awareness of the above. Even greater savings can be realized when reduction of volume per filter is employed while maintaining system volume (expand filter bank).

In this case the following results are effected.

- Initial pressure drop is reduced.
- Total challenge per filter, over time is reduced, assuming concentration is constant.
- Dust loading profile is lowered.
- Dust holding capacity is increased.

Points to Ponder

- 1"Wg. = 5.2 pounds/square foot.
- .10"Wg./2000 CFM = \$34/year energy costs.

Energy costs are the major operating expense of a filtration system.

Your feedback is welcome.

Respond to: burkeenv@earthlink.net or call at (310) 671-6915.



A LONDON'S UNDERGROUND JOURNEY

by: Ralph Panting

This year some of you may know that my wife Judy and I have just come back from vacation in the United Kingdom.

Our trip took us from London England, up through Wales and into the Scottish Highlands. Scotland is a beautiful country and I hope that you too will visit there one day. We made new friends from other parts of the world, a couple from Australia, South Africa, and several from Canada and our own USA.

Our last night in London, Judy and I decided to ride the underground subway just to say we rode the subway. We bought a Zone 1 Day Pass at the Oxford Circle Station and took the northbound train two stations and return on the southbound. Only we didn't come back to the original starting point. This brings me to a word of caution. Always communicate your intentions before putting them into action. By doing so you will avoid what I endured. When we arrived at the second station and discovering that we were not at our point of origin, I decided to get off the train just as the doors closed. When I looked back, I waved to my wife, our eyes wide open, as she proceeded southbound on the train. In a panic I signaled to her that I would stay at this station until she came back. Good thing we were on good

terms, otherwise I may have never seen her again. I proceeded across the station to the northbound tunnel and waited, and waited, and waited. I studied the map carefully located on the wall and started asking questions. This is when I found out that there were four tunnels at this station not two. I also found out that the northbound train was directly under the southbound train. So I positioned myself between the tunnels, something you can do in the station area, and waited. Fortunately Judy came up from a lower level and we met up. Well by this time I finally figured out how to get back to our starting point and took the appropriate trains to finish our journey.

Even leaving the station, we walked in the wrong direction to the hotel. After asking directions, we finally walked back to our hotel in silence but were sure glad that we got back safely. So ends another chapter in life's adventures.

2000-2001 SOUTHERN CALIFORNIA CHAPTER PROGRAMS

DECEMBER 19, 2000

Location: Quite Cannon, Montebello
 Main: Kyoto Protocol's Impact on HVAC&R Industry
 Speaker: Mr. James Wolf, ASHRAE Society President

JANUARY 9, 2001

Location: Les Freres TAIX
 Tech: Trends in Refrigeration
 Speaker: Ms. Cindy Callaway, Southland Industries
 Main: Demand Controlled Ventilation

Speaker: Mr. Mark Tozzi, Carrier Corporation

FEBRUARY 6, 2001

Location: Les Freres TAIX
 Tech: Air Filtration for Hospital Clean Rooms
 Speaker: Mr. Mike Burke, Burke Environmental
 Main: DDC System Case Study
 Speaker: Mr. Scott McDonald, Trane Company

FEBRUARY 6, 2001

Location: Les Freres TAIX
 Tech: Air Filtration for Hospital Clean Rooms
 Speaker: Mr. Mike Burke, Burke Environmental
 Main: DDC System Case Study
 Speaker: Mr. Scott McDonald, Trane Company

MARCH 6, 2001

Location: Les Freres TAIX
 Tech: Five Common Psychometric Mistakes
 Speaker: Mr. Mike Gallagher, Western Allied
 Main: Optimizing Chiller Plant Design
 Speaker: Mr. Kent Peterson, P2S Engineers

APRIL 3, 2001

Location: Les Freres TAIX
 Tech: Applications Handbook Use Overview
 Speaker: Mr. Phil Trafton, D.F. Dickerson & Associates
 Main: Multi-Story HVAC Design
 Speaker: Mr. Larry Sun, Tsuchiyama & Kaino

MAY 1, 2001

Location: Les Freres TAIX
 Tech: Pump System Fundamental
 Speaker: Mr. Bob Brennan, Weil Aquatronics
 Main: Packaged HVAC System Considerations
 Speaker: Mr. Sukhdev Mathaudhu, Mathaudhu Engineering

JUNE, 2001: INSTALLATION DINNER/DANCE

Location: To be announced.

WESTERN SECTION PROGRAMS

NOVEMBER 14, 2000

Location: Mariann's Italian Villa
 800 S. Broadway
 Santa Maria
 Speaker: Jim Reece or rep. York International
 Topic: Underfloor A/C Distribution Systems
 Note: To be confirmed.

DECEMBER 12, 2000

Location: Josie's Four Winds
 3425 State Street
 Santa Barbara
 Speaker: Robert Scheir
 Sterile Air Products
 Topic: UV Lights and Applications in Air Handling Systems

JANUARY 9, 2001

Location: Barefoot Bistro
 545 Thompson Blvd.
 Ventura
 Speaker: John Clark
 The Trane Company
 Topic: Chillers

FEBRUARY 13, 2001

Location: Mariann's Italian Villa
800 S. Broadway
Santa Maria

Speaker: Bill Dohn,
Dohn & Associates

Topic: Design of Studios,
Concert Halls,
Auditoriums and Other
Difficult Acoustic Jobs

MARCH 13, 2001

Location: To be announced.

Speaker: Mike Erfuth
Baltimore Air Coil

Topic: Cooling Tower
Fundamentals

APRIL 10, 2001

Location: Barefoot Bistro
545 Thompson Blvd.
Ventura

Speaker: Steve Alschuler
Air Treatment Corp.

Topic: ASHRAE 62-99 IAQ
Code and Air Flow
Measurement Products

MAY 8, 2001

Location: Mariann's Italian Villa
800 S. Broadway
Santa Maria

Topic: To be announced.

JUNE 12, 2001

Location: Josie's Four Winds
3425 State Street
Santa Barbara

Speaker: Ken Radtkey
Blackbird Architects

Topic: Green Buildings

Dinner Reservations:
Hugh Mcternan,
(805) 957-4932/Fax (805) 653-7200



I WANT YOU

to attend the ASHRAE dinner featuring
Society President Jim Wolf.
The Southern California Chapter will host this
joint chapter meeting.

Mr. Wolf will speak on the Kyoto Protocol and its
impact on the HVAC&R industry.

Please mark the date!
December 19, 2000

Venue:
Quiet Cannon, Montebello

Further details will be announced!



**SOUTHERN CALIFORNIA CHAPTER
OF THE
AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS, INC.**

We would like to extend an invitation to all Southern California Chapter ASHRAE members to attend a free workshop on Performance Assurance. What is Performance Assurance?

Performance Assurance is a profitable new service provided to architects and building owners by the mechanical systems (HVAC) design engineers. Performance Assurance (PA) is a simplified building commissioning process which relies on the usual construction specification process, and utilizes standards for building commissioning developed by ASHRAE, IES, and the Federal Government. Learn how the Performance Assurance process can improve the performance of HVAC systems in your buildings.

Subject: Performance Assurance

Date: Monday, November 20, 2000

Time: Luncheon 11:00 a.m. - 1:30 p.m.
Dinner 6:00 p.m. - 8:30 p.m.

Cost: Free

Location: SCE CTAC
6090 Irwindale Blvd.
Irwindale
Multi-purpose room

Contact: For more information and workshop registration please call:
Bryan Shull (916) 363-8383, ext. 222
e-mail: bryan@adm-energy.com

Note: This workshop is sponsored by Southern California Edison Company and ASHRAE CTC-11 (Building Commission).





October Clam Bake

HELP WANTED

Anybody wishing to place an ad in this column for an engineering or other position please submit your request to:

JOE C. ABLAY, P.E.
10775 Business Center Dr.
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Please make a donation of \$50 per ad made payable to: ASHRAE Southern California Chapter

Others who are seeking employment may place an ad at no charge.

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Peter H. Narbonne, P.E.
Chief Engineer/Vice President



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From the Editor's Desk
by Joe Ablay

Tuesday, November 7th is a very important day, to all of us, first being the Election Day and second, being ASHRAE's Research Night. Let us all exercise the Right of Suffrage and vote. Also, let us help our great organization by contributing to the Annual Research Fund.

Great thanks to our members who sent their articles for the Technical Forum Section. Sharing knowledge and experiences will always help us in the pursuit of professional and technical development.

Again, let's all get involved!

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