

SOL AIR

Newsletter of the Southern California Chapter: American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
February 2001 website: www.ashrae-socal.org Vol. 46, No. 6

FEBRUARY MEETING INFO

February 6, 2001

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

5:30 Tech Forum
Energy Implications of Air Filtration
Equipment
Speaker: Mr. J. Michael Burke,
Burke Environmental

6:05 Social Hour (Fun Time!)

6:45 Dinner
\$23 with reservation
\$25 without reservation
\$10 student member

7:45 Main Program:
DDC Systems & Interoperability
Speaker: Mr. Avi Baidya,
The Trane Company

9:00 Meeting Ends

Please place reservations to Jennifer Farr,
(310) 671-6915, Fax (310) 671-1467 by
Monday, February 5, 2001.

FEBRUARY MAIN MEETING

DDC Systems & Interoperability

by: **Avi Baidya, Trane Company**

Avi Baidya has been with the Trane Company for over four years - initially in Europe as the Building Automation Systems Sales Manager for the UK. Since October 1999, he has been working in the USA with the Trane ICS Institute providing technical instruction to Owners, Operators, Facility Managers, Trane Sales and Operational personnel on their products and systems.

He now works as a member of the Interoperable Systems Marketing team, serving as one of the primary points of contact for the Trane sales organization and customers on the topic of Interoperability, marketing and positioning of Trane in this respect.

The presentation (approx. 40 mins) will present an overview of Interoperability including the following:

- Objectives of Interoperability
- Applying Interoperability
- Enabling Technologies - BACnet & LonTalk
- Interoperable Systems
- Summary
- Questions

FEBRUARY TECHNICAL FORUM

Energy Implications of Air Filtration Equipment

by: **J. Michael Burke**

J. Michael Burke, president of Burke Environmental, Inc., will address various issues relating to roles air filtration equipment play in today's diverse markets. The workshop will include the demonstration of graphic materials and products.

The underlying theme will be that of establishing the fact that we do have controls of our environment and that we need only to implement the tools available.

SOUTHERN CALIFORNIA CHAPTER BEARING BRUNT OF DEFAULT IN MEMBERSHIP DUES

by: **J. Michael Burke**

Our chapter is being affected financially as a result of "non-payment" of chapter membership dues.

If you have not paid your dues, please forward payment immediately. We need your help in this matter. Names are being removed from the Roster if payment is not received.



President's Message

by Sudhir Agrawal

January Meeting started out with a good turn out of the members. The topics of technical and main programs were "Ammonia System Design- Back to Basics" and Demand Controlled Ventilation.

ASHRAE- Southern California is very thankful to Southern California Edison Co. (SCE) who has been supporting the Chapter for printing and mailing of our newsletter "Sol*Air" for over 10 years. Due to recent financial crisis, SCE will not be able to support this effort effective immediately. Thanks to Ishtiaq Chisti for supporting the Chapter so far for this effort. I would also like to thank Los Angeles Department of Water & Power (DWP) who has graciously agreed to help the Chapter for the next 5 months. Thanks to John Lockett and Charles O'Connor for this special assistance. The Chapter is looking into possibility of sending the newsletter via e-mail in future (next fiscal year). I know that all of us have e-mail access. Please contact Ralph Panting and Joe Ablay to keep your e-mail address current.

Just a reminder, ASHRAE Winter meeting will take place in Atlanta from January 27 thru 31. Technical presentations and product displays happen at a mass scale. We encourage everyone to attend. This year the Chapter Regional Conference (CRC) is hosted by San Francisco Chapter on May 3, 4 and 5.

The Chapter established several technical committees sometimes back. There are many more opportunities for starting the technical committees on the subjects pre-established by the Society. Chapter encourages members to take a leadership role and keep these technical committees active and start the new ones in your area of interest. Please contact any of the Board members to get the details as to how to start the committee. This is a very good source of technical information and a nice networking tool.

Please keep an eye out for the Golf Tournament flyer. Ed Schmidt has great plans for your entertainment.

Mike Gallagher is putting together a very special Spring Seminar on Psychrometric Chart. This seminar you don't want to miss. Last year, we were over-booked on the spring seminar. Please make your reservations in advance. Watch out for the dates.

Please pay attention to Amar Amarnani's mail and make your contribution to Research Promotion.

Once again, don't forget to visit the Chapter Website www.ashrae-socal.org. Craig Hofferber keeps it updated on a regular basis.

JANUARY MAIN MEETING RECAP

Presentation On CO₂ Demand Controlled Ventilation (DCV)

by: Mike Schell, Tellaire, Santa Barbara, CA & Rich Remke, Carrier Corporation, Syracuse, NY

Background

- Outdoor air CO₂ levels are consistently low, between 350 ppm and 450 ppm in most urban areas. Slightly higher levels are possible but only if localized sources of combustion are present (cars, trucks, furnace or boiler exhausts).
- Indoors, people are the major source of CO₂. Given the same activity level, multiple adult will produce similar and predictable amounts of CO₂. As a result CO₂ production indoors is directly related to occupancy. Double the number of people in a space, CO₂ production doubles.
- CO₂ is not considered harmful or an air contaminant at levels normally found in buildings. Rather it is a dynamic indication of the ventilation rate in a space by measuring the CO₂ produced by people as it is diluted by low CO₂ concentration outside air. Using CO₂ it is possible to measure and control to a specific cfm/person ventilation rate.
- CO₂ DCV is recognized by Title 24, ASHRAE Standard 62-99 and the International Mechanical Code.



Main program speakers Rich Remke and Mike Schell with Bob Brennan.

Benefits Of CO₂ DCV

- Target cfm/per person ventilation rates can be maintained based on actual occupancy by modulation of ventilation based on CO₂ control. This is in contrast to the traditional approach of providing a fixed ventilation level based on an assumed maximum occupancy. For spaces subject to variable and intermittent occupancy energy savings are possible from reduced ventilation yet code required cfm ventilation rates can still be maintained to ensure acceptable air quality.
- Zone level CO₂ control can ensure that outside air is properly distributed to all areas of the building. These systems can automatically react to changes in occupancy patterns or use.
- Even if occupancy is fairly static, CO₂ control can be used to continuously provide the right amount of ventilation to the space based on occupancy. In many cases manual setting or arbitrary adjustment of outdoor air intakes can cause a building to be over ventilated. CO₂ control can automatically control ventilation to the appropriate level based on real-time occupancy.
- CO₂ control will recognize outside air from other sources such as open doors, open windows and infiltration and will not control a mechanical system to provide fresh air as is in addition to these other sources of outside air.
- Zone level CO₂ can identify and re-circulate under-utilized air from other spaces to provided ventilation and further reduce costs of ventilation.

The Technology

- The cost of Infrared based CO₂

sensors have dropped by 50% or more over the past two years, making this approach economical for zone level control. Some products are now on the market that measure both CO₂ and temperature in one unit.

- Sensor designs now incorporate self-calibration features that allow for the sensor to continually recalibrate itself bases on looking at background levels that occur during unoccupied hours. The result is sensors that never need manual calibration.
- Wall mount CO₂ sensing is preferred to duct mount sensors for the same reasons you mount temperature sensors in the space rather than the duct.

Mike Schell and Dan Inthout discuss much of the information covered in the talk in greater detail in an article on Demand Controlled Ventilation in the February 2001 Issue of the ASHRAE Journal.

JANUARY MEETING SNAPSHOTS



Tech speaker Ted Kohlenberger with Bob Brennan.



Phil Trafton and John Tamney receiving their Special Recognition Awards from President Sudhir Agrawal.



Eli Silon receiving his award from President Sudhir Agrawal.





Spring Seminar

This year's seminar will be an Applied Psychrometrics and Airside Review. This will be a skills-sharpening seminar for those who regularly use psychrometrics (or should) in their career. We are still firming up the exact location and date, but you can expect it to be a central Los Angeles County location in mid-April. The event will include working out a lot of actual psychrometrics problems, as well as an initial psychrometrics review. The last part of the session will consist of a discussion of field measurements that real service technicians can give you, and some practical example problems for taking common airside readings and determining actual system performance. You will need to bring pencils with erasers, a notepad, and a calculator. After you struggle through the assigned problems, answers will be provided.



This all day Saturday session will include coffee and lunch. The fee will also include the materials that you will receive. This same seminar was presented in 1992 and was very well received.

The presenter will be Mike Gallagher. We plan to have a sign-up form in the next *Sol*Air*.

TECHNICAL FORUM SECTION

Living With It... Service Lessons in Engineering Design

by: Michael Gallagher, P.E.

(Be advised; this is an opinion piece)

What do do to make DDC installations more friendly to operating engineers and HVAC service technicians? I suspect that the majority of owners are not happy with their DDC installations. How can the initial specification help the people who have to live with the results?

Most smaller DDC projects consist simply of a controller and the related relays and wiring. These smaller projects often cannot justify an on-site PC to make everyone's life easier, in fact, there is often no place to put a PC, even if you wanted one. Larger installations typically do not share these restrictions, yet they often lack a PC, as well. Is there a middle ground? What is practical?

Keep in mind that the people who most often respond to complaints are not controls technicians. They are building engineers and service techs (the paramedics and general practitioners). These guys are usually capable of determining where the problem lies, but often lack the training or tools to correct a controller or software problem. It is important to give them means to manually bypass the immediate problem, until an appropriate specialist can be summoned. Some people argue that if a means to bypass a situation exists, then the system will forever after exist in the bypass mode. I don't buy this in most cases, though there is a kernel of truth in the statement. There are some simple ways to avoid problems.

First every starter (pump, motor, fan, etc.) controlled by the DDC system should have an HOA (hand-off-auto) switch to permit manual operation.

Second, every DDC panel should also have (optional) HOA switch on each control function. You may not be aware that the DDC panels themselves are available with HOA switches. These are very handy for emergency diagnostics as well as manual override of control functions.

Third, every controller should have a hard copy of its points list posted.

Fourth, every room temperature sensor in an area with semi-permanent occupants should have some manual setpoint adjustment means, whether a slide bar, a rotary thumbwheel, or whatever. Dumb sensors with no adjustments should only be used in common areas.

Fifth, don't use electric valve or damper actuators outdoors without provision for rain, fog, and dew.

Sixth, any important on/off signal (such as to a supply fan motor) should have a means of confirming whether the device being controlled is properly responding. For example, if the fan belt has broken, many DDC systems do not know that no supply air is blowing... until a more serious side effect appears. Various methods, such as using a current measurement device, can be used to confirm that the fan is responding.

Seventh, no job should go in without a telephone modem connection unless you enjoy pointless service calls.

A final suggestion. It is a very good idea to perform a thorough annual maintenance visit to a DDC site, with two guys with radios (one at the front end, and one moving from device to device), to confirm that everything the front end thinks is happening conforms to reality. We've found that typically something like 3% to 5% of the sensors or devices are not performing properly, and the effects are generally not obvious by simply looking at the front end. Imagine the condition of a system that has not been thoroughly checked out for several years!

Your feedback is welcome.

Respond to mgallagher@westernalied.com or call at (562) 944-6341.

2000-2001 SOUTHERN CALIFORNIA CHAPTER PROGRAMS

MARCH 6, 2001

Location: Les Freres TAIX
 Tech: Specialized Application Cooling Load
 Speaker: TBD
 Main: Optimizing Central Chiller Plant Design
 Speaker: Mr. Kent Peterson, P2S Engineering

APRIL 3, 2001

Location: Les Freres TAIX
 Tech: ASHRAE Handbook Review "Bite-Size"
 Speaker: Mr. Phil Trafton, D.F. Dickerson & Associates
 Main: Multi-Story Non-Resident HVAC Design
 Speaker: Mr. Larry Sun, Tsuchiyama & Kaino

MAY 1, 2001

Location: Les Freres TAIX
 Tech: Field Capacity Measure & Applications
 Speaker: TBD
 Main: Efficiency 2001
 Speaker: Mr. Charles O'Connor, Dept. of Water & Power

JUNE, 2001: INSTALLATION DINNER/DANCE

Location: To be announced.

WESTERN SECTION PROGRAMS

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 Mcernan,
(805) 957-4932/Fax (805) 653-7200



Chinese New Year

Jan. 24

Year of the Snake



HELP WANTED

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

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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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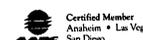


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From the Editor's Desk

by Joe Ablay

Our Main and Technical programs for this month are timely in that they both impacts Energy Conservation be it in healthcare and office environment.

Members are always welcome to send in their technical articles to be shared to general membership.

I'd like to specially thank David Kuo for coordinating the printing of last month's issue of *Sol*Air* (and little did we know our last at Edison) Ted Hanft and Ralph Panting in expediting this month's issue of *Sol*Air* in preparation for the Los Angeles Water and Power.

Let's all get involved!

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