

ENERGY NIGHT OCTOBER 4, 2005 MEETING INFO

LES FRERES TAIX

1911 Sunset Blvd., Los Angeles, California

5:30 Tech Program: Air Duct Leakage - TAB Techniques and Procedures
Speaker: Mr. Eddie Alejandre, Los Angeles Air Balance

6:05 Social Hour (Fun Time!)

6:45 Dinner

\$27 with reservation
 \$30 without reservation
 \$10 student member
 Meal choice will be beef bourguignon and fresh filet of salmon.

7:45 Main Program: Thermal Energy Storage in Sustainable Buildings - TES and LEED
Speaker: Mr. Mark M. MacCracken, CalMac, ASHRAE Distinguished Lecturer

9:00 Meeting Ends

Reservations: Dale Au (626) 961-9640

Fax (626) 961-9041 by Monday, October 3, 2005

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OCTOBER MAIN PROGRAM: THERMAL ENERGY STORAGE AND LEED

Speaker: Mr. Mark M. MacCracken, CalMac, ASHRAE Distinguished Lecturer



Thermal Energy Storage (TES) used for off-peak cooling of buildings, has a long history around the world with over 6,000 commercial installations in 35 countries. By storing cooling at night in the form of ice or chilled water and using it during the day to cool the buildings, major reductions in on-peak electric demand and

energy costs are realized. This discussion will demonstrate the basic types of TES systems, how they save energy and reduce costs, and how this relates to the U.S. Green Building Council's LEED rating system. Some of the myths surrounding ice-based TES that prevent it from becoming a staple in energy efficient building designs will also be addressed. This discussion will also cover the basic control theory for TES systems. Proper control of TES systems is the single biggest factor in maximizing the financial benefits the system can provide. Basic modes of operation are common to all types of TES systems; however, system layout has a direct impact on how to accomplish the control objective. Different sizing and operating strategies are analyzed and demonstrated.

Mark M. MacCracken is the CEO of CALMAC Manufacturing Corporation, whose main products are used for off-peak cooling of buildings using Thermal Energy Storage. In his 25 years with the firm, he has been involved in all aspects of the company including, R&D contracts, patents, manufacturing, marketing and finance. He was the principal investigator on research projects with Oak Ridge National Labs, NASA and National Renewable Energy Research Lab.

Mr. MacCracken's company has been involved in over 3,000 thermal storage systems in 35 countries. He has three U.S. patents, is a licensed Professional Engineer in the state of New Jersey and has written numerous technical articles.

(continued on page 2)



Well, we made it through the first meeting of the year and I would like to officially thank Mr. Kent Peterson for speaking at our Chapter meeting. Kent's involvement with the ASHRAE Society is well documented and we appreciate his insight and information on the ASHRAE Society. If you missed the meeting, check out the meeting recap in this issue of the *Sol Air*.

You will recall from the last issue of the *Sol Air* that we have made dramatic changes to our Web site. We believe this is a change for the better and I encourage all of you to visit the site and check it out for yourself.

I also wanted to take this opportunity to acknowledge Susan Wells and Sharon McKeown our new *Sol Air* editors. They did a great job putting together the first issue and I think we can look forward to more great things to come.

Last month we recognized several students from local schools and awarded \$12,000 in scholarships. The ability of our Chapter to continue assisting students is made possible through the support of our members. We should all be very proud of our efforts that have allowed us to continue supporting students that will be joining our profession. Like everything else in our Chapter, nothing happens without the commitment of our members. So I would also like to recognize the Scholarship Committee and thank them for their time and effort.

In closing, I would again remind you of the fellowship of ASHRAE. In order for the Chapter to be successful and to be able to serve your professional development, your involvement is needed. I encourage you to attend the monthly meetings and contact members of the Board to see how you might become more active in the Chapter.

October Main Program

continued from page 1

He is the former Chair of ASHRAE's Thermal Storage Technical Committee, the current Chair of ARI's Thermal Energy Storage Section, a Board Member of the New York Chapter of the U.S. Green Building

Council, and an active member of the International District Energy Association and the Alliance to Save Energy. Mr. MacCracken is an outstanding speaker and an ASHRAE Distinguished Lecturer.

OCTOBER TECH MEETING: AIR DUCT LEAKAGE - TAB TECHNIQUES AND PROCEDURES

Speaker: Mr. Eddie Alejandre, Los Angeles Air Balance

The Tech Seminar for the October ASHRAE meeting will include a discussion of:

- ❖ Duct testing methods, techniques and standards used in the field.
- ❖ Common experiences, troublespots and challenges will be highlighted.
- ❖ Also, the most significant changes in the 2005 Building Energy Efficiency
- ❖ Standards will be reviewed.

Mr. Eddie Alejandre is president of Los Angeles Air Balance Co., Inc. (15 years). He is a Registered Professional Engineer in the state of California. Mr. Alejandre obtained his Bachelor of Science Degree from Cal Poly Pomona and is an AABC Certified TBE (Test and Balance Engineer). He is also an AABC Certified Commissioning Agent (CxA).

SEPTEMBER MAIN MEETING RECAP

By Ishtiaq A. Chisti, P.E.

The Main Program speaker for the Chapter's first meeting of the year was Mr. Kent Peterson, the Chief Engineer/VP and a Founding Principal of P2S Engineering in Long Beach. As the current Society Treasurer, Kent has intimate knowledge about ASHRAE's inner workings, including how our venerable, century-old organization strives to offer excellent service to its members and society at large. The speaker, through a content-rich PowerPoint presentation, gave a broad and detailed overview of ASHRAE and how its recent strategic overhaul promises to "Bridge the Gap between the Chapters and Society."

He stressed that traditionally ASHRAE has moved too slowly and did not keep up with "the speed of business." This was an acute observation and acknowledgement because modern technological development happens at lighting speed and the success of HVAC&R companies depends to a great extent upon how quickly they embrace and implement technological innovations. By streamlining ASHRAE's operations appropriately (e.g., reducing five councils to three), Kent

and the management team at the Society has aligned it to become much more responsive to the needs of the membership. Kent shared with us some of the dizzying statistics that make ASHRAE one of the foremost and most unique technical organizations in the world. ASHRAE has more than 53,500 members in 129 countries with 167 Chapters. Maybe “W” should replace “A” as the first letter in the acronym!

In addition to discovering and developing an ever greater array of innovations to improve the comfort level of the built space (one of the most important objectives of ASHRAE, Kent reminded us), is to design and use HVAC&R equipment that consumes the least amount of energy. Since the 1970’s, this has become and continues to be of major concern to Americans and the rapidly growing economies of the rest of the world as exemplified by China and India. Therefore, ASHRAE will focus its energies to working more closely at the grassroots level, i.e., through the Chapters and local communities and governments to develop codes and standards to encourage installation and practices that are sustainable with the limited resources we have available.

Lastly, Kent Peterson addressed the need for ASHRAE to reach out to younger members and students of our discipline (online technical seminars, free student breakfast gatherings at Society meetings, etc.), surely an appropriate focus since the Chapter honored several students at this meeting with \$12,000 worth of scholarships.

I wish I had more space here to share with you Kent’s entire presentation but I intend to pursue posting his presentation in the Chapter’s newly designed Web site.

I wish I had more space here to share with you Kent’s entire presentation but you can view it in the Chapter’s newly designed Web site, <http://www.myhvac.us/Ashrae-SoCal/>.



David Kuo presents Kent Peterson with a certificate of appreciation

2004-05 SCHOLARSHIP COMMITTEE REPORT FOR THE SOUTHERN CALIFORNIA CHAPTER

By Ishtiaq A. Chisti & Clay Lampman, Scholarship Committee

Clay Lampman and Ishtiaq A. Chisti interviewed students from three different schools this year to award the Chapter scholarships to a select few. The interviews were conducted in Cypress College, SCE Headquarters in Rosemead, and at a hotel in Santa Barbara. The total amount of Scholarships this year totaled **\$12,000**, which the Chapter disbursed at its first monthly meeting on September 13, 2005, at Taix restaurant in Los Angeles.

The details of the scholarships are shown below. An additional grant of \$2,000 may be awarded to fund a student project at Cal Poly Pomona during the latter part of the year.

Student	Type of Award	Amount
Peter Thomas Cal Poly SLO	J. Frank Park	\$ 3,500
Stefan M. Long Cal Poly SLO	Four Year College	\$ 1,500
Elisha L. Ortega Cal Poly Pomona	Four Year College	\$ 1,500
Todd M. Buchanan Cal Poly Pomona	Four Year College	\$ 1,000
Travis J. Hudson Cal Poly Pomona	Four Year College	\$ 500
Anthony V. Madrid Don Bosco Tech	Community/Jr. College	\$ 500
Robert A. Hinson Cypress College	Community/Jr. College	\$ 1,000
Adam J. Thomas Cypress College	Community/Jr. College	\$ 750
Andrew T. Sear Cypress College	Community/Jr. College	\$ 750
Don W. Kezer Cypress College	Community/Jr. College	\$ 500
Scott E. Fisher Cypress College	Community/Jr. College	\$ 500
	Total	\$12,000



Todd Buchanan



Don Kezer



Debbie Hudson
(Mother of Travis Hudson)



Stefan Long

MEMBER ADVANCEMENT

Submitted by Carmen Urenda

Yoshitaka Morioka of Levine/Seegel Associates was approved for advancement to Member grade during the May 11 meeting of the Admissions and Advancement Committee. Congratulations!

ASHRAE REGION X AWARDS



Cindy Calloway; Regional Award of Merit, Clay Lampman; Outstanding Achievement in Student Membership Growth and Phil Trafton (not shown) for outstanding Achievement in Student Scholarships.

ASHRAE IAQ 2007 EXAMINES HEALTHY, SUSTAINABLE BUILDINGS

By Jodi Dunlop

ATLANTA - Healthy, sustainable buildings are those that create high quality indoor environments while minimizing their impacts on the outdoor environment.

But achieving both can be a challenging goal.

Guidance on how to do so will be presented at the American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE) conference, IAQ 2007 Healthy and Sustainable Buildings, which will be held Oct. 15-17, 2007, at Baltimore's Inner Harbor in Baltimore, Maryland.

"The issues of healthy and sustainable buildings are cyclical and interdependent," Lawrence J. Schoen, P.E., Chair of the conference said.

"Buildings not only impact the indoor environment but they have an impact on the outside environment. Our goal in creating healthy buildings should be to create indoor environments where people are healthy and productive, but that minimize impact on the environment."

The conference will emphasize the measured performance of healthy and sustainable buildings and practical methods for their design, construction, operation and maintenance, according to Schoen.

For more information, contact ASHRAE Technical Services at IAQ2007@ashrae.org or www.iaq2007.org.

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

ASHRAE.ORG EARNS AWARD OF EXCELLENCE

By Jodi Dunlop

ATLANTA - ASHRAE.org, the Web site of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, has earned an award of excellence from the Web Marketing Association.

The association's Standard of Excellence Web Award recognizes the best Web sites in a variety of industry categories. Past Standard of Excellence sites include The American Water Works Association, ABC News, and Abercrombie and Fitch.

Judges noted that ASHRAE.org is "easy to navigate and easy to find your contact information." Entries are judged on design, innovation, content, technology, interactivity, copywriting and ease of use.

The site exceeds 6,000 unique visits per day and hosts 8,000 documents. ASHRAE.org was launched in 1995 to deliver information to the HVAC&R industry, including authoritative, in-depth technical information,

information on Society activities, updates on emerging trends in new technologies, and information on HVAC&R products, companies and organizations.

"ASHRAE.org is designed to make it easy for visitors to find the information they need in order to help fulfill their obligation to their clients and customers as well as to the Society," David McAlister, ASHRAE's manager of electronic communications, said. "For Internet professionals to judge our site a Standard of Excellence in Web design is encouraging. But the usability and friendliness of a site depends on member feedback and constant study of industry best practices. We see this award as confirmation that we're on the right path."

Services of the site include:

- ❖ Discussion boards to enable practitioners to share expertise and opinions in a variety of technical areas.
- ❖ Online meetings for committees.
- ❖ An interactive membership application form.
- ❖ A career services center where members can post resumes and search for jobs.
- ❖ Enewsletters, *The HVAC&R Industry*, which provides weekly industry updates to subscribers, and *Society Connections*, which provides discussion forums on technical issues and Society news.

The Web Marketing Association was founded in 1997 to help set a high standard for Internet marketing and corporate Web development on the World Wide Web.

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

WHEN IS AN OPEN PROTOCOL CONTROL SYSTEM A TRUE OPEN AND INTEROPERABLE SYSTEM?

By Alan Slabodkin



The last several years has seen the adoption of Open Protocol Control Systems increase dramatically, even though the large Control System manufacturers have shown resistance since it decreases the demand from their existing customers with proprietary/legacy control systems. The promise of

these systems seem almost too good to be true for an owner/end-user:

- ❖ It eliminates the need to purchase only compatible products (the "hook")
- ❖ It can eliminate the "obsolescence" of their control system
- ❖ It can allow true innovators to provide new and imaginative products
- ❖ It can shift the power to the owner/end-user by allowing for choices

But are all Open Protocol Systems (OPS) truly open and interoperable? Some common myths of OPS are that all OPS utilize a published, publicly accessible protocol such as Modbus, Bacnet, Lonworks, OPC, XML/Soap, among others. Another myth is that a system is OPS when the entire system is provided by a single supplier utilizing an open protocol or when a legacy system provides an interface to an open protocol. None of these define a true Open Protocol System.

So let's put on our owner/end-user hat and try and define what this system should be and why:

- ❖ It must utilize a published, established Open Protocol. (Goodbye "hook")
- ❖ It must be available from multiple sources for support, service, parts and new installation. (Why go through the effort and then be at the mercy of a single source?)
- ❖ Multiple products from different vendors of similar products should be available, such as VAV controllers. (Pick the "best of breed" and keep the pricing competitive.)
- ❖ When using different vendors controllers (as in #3), the user must be able to easily integrate these controllers without the need of gateways, interfaces or having to do any extraordinary programming. (This ensures the system is not only open but also interoperable)
- ❖ If integrating across multiple platforms, gateways or interfaces are acceptable to other protocols but all programming tools for these devices will be available to the owner. (There may be reasons to integrate but the original installer should not be the only source)
- ❖ Try and utilize non-proprietary software programming tools. If proprietary tools must be used, then all the programming tools must be installed or available to the owner without the need of again having to go back to the original installer.
- ❖ Try and maintain peer to peer communication between devices. Without this, it can require a

proprietary controller, adding a single point of failure and giving someone back the “hook” again.

- ❖ The Graphical User Interface (GUI) should support the latest technologies and if possible, be non-proprietary. Even still, all tools should be available to the owner.

The promise of true open, interoperable systems can be achieved. The actual motivator for these systems is the owner/end-user – but as engineers, installing contractors and manufacturers we can assist them in finding the right path to that end.

Alan Slabodkin is a Principle of Western Allied Corporation. Alan has been involved in the controls field since the late 1970’s. At Western Allied, where Alan has been for 11 years, he oversees the Controls Department and specializes in open-protocol control systems.

SHEET METAL INDUSTRY DEVELOPS NEW TRAINING CENTER

By Tani Poe



SMACNA Los Angeles, Orange Empire SMACNA, ACSMA and SMWIA Local Union 105 have completed construction of their new 60,000 square foot Joint Apprenticeship and Training Center facility. The new facility is located at 633 N. Baldwin Park Boulevard in the City of Industry.

This new facility includes:

- ❖ The Southern California JATC Management Staff and Teachers' Offices
- ❖ 7 Classrooms
- ❖ 1 CAD Drafting Computer Lab
- ❖ 5,500 s.f. Welding Lab with 52 Welding Booths
- ❖ Two (2) 5000 s.f. Sheet metal Fabrication Shops
- ❖ 5,000 s.f. Test and Balance Lab
- ❖ 5,000 s.f. Service Lab
- ❖ 5,000 s.f. HVAC Ductwork & Architectural Installation Lab

The new JATC Facility will provide sheet metal apprenticeship training to Los Angeles and Orange-Inland counties Union sheet metal worker apprentices. The course work the students follow is a five-year curriculum developed by the International Training Institute (ITI) for the sheet metal and air conditioning industry. The facility will also provide advanced and specialty training for Journeymen Sheet Metal Workers.

The core sheet metal apprenticeship course will provide two years of intensive training in all aspects of the design, fabrication and installation of HVAC, architectural and industrial sheet metal systems. This includes: knowledge and use of sheet metal-ductwork fabrication machinery, properties of metals, plan and specification understanding, manual and Auto-CAD drafting skills, construction layout and OSHA safety requirements. During the next three years, the students can concentrate on their chosen specialty. The choices include: HVAC ductwork system design and installation, testing and balancing of HVAC systems, welding technology and techniques, and architectural sheet metal design, fabrication and installation.

The JATC center will also provide advanced training for journeymen sheet metal workers. In the near future, the training facility will also provide training on the service and maintenance of HVAC equipment.

The new facility is part of the overall commitment by SMWIA Local 105 and the Union HVAC, Architectural and Industrial sheet metal contractors of Los Angeles-Orange-Inland Empires to provide our customers with complete satisfaction on each and every job by highly skilled sheet metal craftsmen.

Tani Poe is President and General Manager of Western Allied Corporation in Santa Fe Springs California. He is a graduate engineer from Cal Poly, SLO and serves as a Director of the Los Angeles chapter of SMACNA and director of the Southern California JATC.





SUMMARY OF THE 2005 CHANGES TO THE CALIFORNIA ENERGY EFFICIENCY STANDARDS (PART 2)

Submitted by Clay Lampman

STANDARDS CHANGES FOR NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND HOTEL/MOTEL BUILDINGS

MANDATORY REQUIREMENTS

Luminaire Power. A clarification will be made that the wattage of incandescent or tungsten-halogen luminaires with medium screw base sockets will be the maximum relamping rated wattage of the luminaire shown on a permanent factory-installed label as specified by Underwriters Laboratories.

Multi-Level Lighting Controls. Current requirements for lighting controls will be clarified and made more specific.

Daylit Areas (§131 (c)). Current requirements for lighting controls in daylit areas will be clarified and made more specific.

Shut-off Controls. Current requirements for lighting shut-off controls will be clarified and made more specific.

Lighting Control Acceptance [§131 (1)]. Acceptance requirements will be established to insure lighting controls are tested before occupancy to determine that they meet Standards requirements.

Electronic ballasts mounted On Outdoor Lighting (§132(a)). The current requirements for high efficacy exterior lighting will be moved to this location and extended to all outdoor lighting with specific exceptions.

Luminaire Cutoff Requirements [§132(b)]. All outdoor luminaires that use lamps rated greater than 175 watts in hardscape areas including parking lots, building entrances, sales and non-sales canopies, and all outdoor sales areas will be required to be rated as "Cutoff" for light distribution.

Controls for Outdoor Lighting. The current requirement for exterior lighting to be controlled by a photoelectric or astronomical time switch will be moved to this location and extended to all outdoor lighting with specific exceptions. The requirement that has been long in effect for indoor lighting for controls capable of "bi-level switching" will be extended low outdoor lighting with specific exceptions.

PERFORMANCE STANDARDS

Space-Conditioning Budget. The space conditioning energy budget will be based on Time Dependent Valuation energy, a cool roof for nonresidential buildings with low-slope roofs, a maximum west-wall glazing area, and skylights with daylighting controls where required by the prescriptive standards in addition to other measures required by current energy budget rules.

Relocatable Public School Buildings. The energy budget will either be based on the special statewide prescriptive envelope requirements for relocatable public school buildings (relocatables) or the prescriptive envelope requirements for schools that vary by climate zone. Relocatables that will be allowed to be installed anywhere in the state will demonstrate that compliance will be achieved in the most severe climates. Relocatables that will be allowed to be installed in only specific climate zones will demonstrate compliance in each of those climates. Compliance will be demonstrated in all orientations.

PRESCRIPTIVE STANDARDS

Building Envelope

Envelope Component Approach. This prescriptive checklist approach will be changed so that nonresidential buildings with low-slope roofs will be required to have cool roofs. Insulation will be required to be placed in direct contact with a continuous roof or drywall ceiling. To comply with prescriptive R-values, roofs with metal framing members or a metal deck will be required to install continuous insulation either above the roof deck or between the roof deck and the structural members supporting the roof deck as specified. West-facing window area will be limited to no more than 40 percent of the wall area.

The Prescriptive Envelope Criteria in Tables 143-A and 143-B will be updated to base wall U-factors on increased framing percentages, make minor recalculations on other roof/ceiling and floor/soffit U-factors, and match window and skylight U-factors to new National Fenestration Rating Council (NFRC) test procedures.

Requirements for relocatable public school buildings will be clarified, including the establishment of special Prescriptive Envelope Criteria (Table 143-C) for relocatables that can be installed in any climate zone in the state, and the requirement that relocatables be labeled to identify that either they can be installed anywhere statewide or they can only be lawfully installed in specific climate zones.

Overall Envelope Approach. This prescriptive tradeoff approach for building envelopes will be changed to establish a limit on west-wall area in the Standard Heat Loss Equation, and to provide tradeoffs to account for Cool Roof Rating Council (CRRC) certified reflectance and emittance ratings relative to Standard Heat Gain calculations. The Standard Heat Gain calculations will assume a cool roof for nonresidential low-slope roofs and a nominal default reflectance for nonresidential high-slope roofs, and roofs for high-rise residential buildings and hotel/motels.

Minimum Skylight Area for Large Enclosed Spaces in Low-Rise Buildings. Low-rise conditioned or unconditioned enclosed spaces with some exceptions that are greater than 25,000 square feet directly under a roof with ceiling heights greater than 15 feet, and that have a lighting power density for general lighting greater than 0.5 watt/square feet, will be required to have at least one-half of the floor area daylit by skylights. The skylights will be required to have a glazing material or diffuser that effectively diffuses the daylight, and multi-level daylighting controls will be required.

SPACE CONDITIONING:

Outdoor Design Conditions. Outdoor design conditions for equipment sizing will be required to be the 0.5 percent Cooling Dry Bulb and Mean Coincident Wet Bulb temperatures in Joint Appendix II. Cooling design wet bulb temperatures for cooling towers will be the Summer Design Wet Bulb 0.5 percent temperatures.

Variable Air Volume (VAV) Systems. Variable all volume systems with motors 10 horsepower or larger will be required to have variable speed drives. Static pressure sensors will be required to be placed in a position such that the controller set point is no greater than one-third the total design fan static pressure. The static pressure set point will be required to be reset based on the zone requiring the most pressure.

Fan Motors of Series Fan-Powered Terminal Units. Fan motors of series fan-powered terminal units will be required to be electronically-commutated or have a minimum motor efficiency of 70 percent.

Economizer Acceptance. Acceptance requirements will be established to insure that economizers are tested before occupancy to determine that they meet Standards requirements.

Heat Rejection Systems. Open cooling towers will be required to be designed so that flow can be turned down to 33 percent of the design flow for the cell. Cooling towers with a combined rated capacity of 900 tons or greater will be required to use propeller fans rather than centrifugal fans.

Limitation of Air-Cooled Chillers. Chilled water plants with more than 300 tons capacity will be required to have not more than 100 tons provided by air-cooled chillers.

Hydronic System Measures. Chilled and hot water pumping will be required to be designed for variable flow. Chillers and boilers will be required to be designed so that equipment can be isolated to not allow flow through equipment when the equipment is shut off. Chilled and hot water systems with a design capacity greater than 500,000 Btu/h will be required to have temperature reset controls. Water-loop heat pumps will be required to have isolation valves and variable speed drives on the pumps. Variable flow chilled and condenser water pump systems will be required to have variable speed drives and controls.

Air Distribution System Duct Leakage Sealing. Duct systems with more than 25 percent duct surface area in unconditioned or indirectly conditioned spaces will be required to be sealed with leakage not greater than 6 percent of fan flow, confirmed through diagnostic testing and field verification.

Air Distribution System Duct and Plenum Acceptance. Acceptance requirements will be established to insure that duct systems are tested before occupancy to determine that they meet all Standards requirements.

INDOOR LIGHTING

Reduction of Wattage Through Controls [§146(a)4]. Installing effective controls reduces the duration that lighting equipment is on, thereby reducing energy use. Compliance credit may be taken for installing lighting controls meeting specific criteria through the use of Power Adjustment Factors, which create tradeoffs against the lighting power density allowances in the Standards. To qualify for the Power Adjustment Factor credit in small offices, occupant sensors will be required to have an automatic off function and either a manual on function or bi-level automatic on function with multi-level circuitry and switching.

New Power Adjustment Factor credits will be established for the above occupancy sensor combined with daylighting controls in specific spaces and for the above occupancy sensor combined with manual dimming with dimmable electronic ballasts. A new Power Adjustment Factor credit will be established for occupant sensor controlled multi-level switching or dimming that reduces power at least 50 percent when no people are present in hallways of hotels/motels, commercial and industrial storage stack areas, and library stacks.

To qualify for the Power Adjustment Factor credit for automatic daylighting controls with windows,

stepped switching or stepped dimming/continuous dimming will be required. A Power Adjustment Factor credit for automatic multi-level daylighting controls with skylights will be established with a requirement for the skylight glazing material or diffuser to be highly diffusing as specified. Some previously available Power Adjustment Factor credits will be discontinued.

Lighting Wattage Excluded. The list of lighting applications that may be excluded when showing compliance with lighting power density requirements will be clarified to respond to clarification questions that staff has received on the current Standards, Specific lighting applications will be excluded from the indoor lighting power density requirements.

Complete Building Method. This method allots maximum lighting power densities for complete buildings. New allotments will be added for financial institutions, hotels, auditoriums and parking garages. The allotments for some existing building types will be reduced to save energy. The use of the power allotment for retail and wholesale stores will be clarified to not allow its use in situations where it is not known at time of permitting if the tenants in a multi-tenant building actually will all be retail and wholesale stores and in situations where the merchandise sales function area makes up less than 70 percent of the building area. The lighting power density allowance for parking garages will not be allowed to be traded off with the lighting power density allowance for the conditioned portion of buildings.

Area Category Method. This method allots maximum lighting power densities for specific spaces within a building. New allotments will be established for civic meeting rooms, financial transaction areas, public and commons areas in housing, parking garages, religious worship areas, tenant lease spaces, and transportation functions. The allotments for some existing building types will be reduced to save energy. The tenant lease space allotment will be required for multi-tenant spaces where a tenant is not identified at the time of permitting.

Tailored Method (§146(b)3]. This method allots lighting power for specific types of lighting functions, which create special lighting needs that are not present in all buildings or areas within buildings, and which occur infrequently in most buildings. This method allows lighting power allotments to be established for these cases so that the allotment is "tailored" to the specific building. The Tailored Method will be substantially revised to clarify its use, update the allotments for specific lighting functions to require the use of more energy efficient equipment, and constrain its use to

situations where special lighting needs truly exist while maintaining flexibility of its use in those situations.

OUTDOOR LIGHTING

Outdoor Lighting Power (§147). Outdoor lighting power allowances with specific exceptions will be established for the following general outdoor illumination applications: hardscape for automotive vehicular use, hardscape for pedestrian use, pathways, building entrances without canopies, and outdoor sales lots. Tradeoffs among the general illumination applications will be allowed to provide design flexibility. Allowances also will be established for the following specific illumination applications: building facades, outdoor sales frontage, vehicle service station canopies, vehicle service station hardscape, Other sales canopies, non-sales canopies, ornamental lighting, drive up windows, guarded facilities, and outdoor dining. The specific illumination allowances will be "use it or lose it" allowances, which can't be traded-off against the allowances for general illumination applications. The lighting power allowances for each illumination application will be established for each of four lighting zones, as specified in Part 1, §10-114. Methods for calculating allowed lighting power levels will be specified. Higher power allowances for hardscape will be provided if specific light levels are required by law through a local ordinance. Higher allotments also will be provided for applications with special security requirements.

SIGNS

Requirements for Signs (§148). Lighting power allowances will be established for internally illuminated and externally illuminated signs for both indoor and outdoor use. Alternatives to the lighting power allowances will be established that allow compliance merely if electronic ballasts are used or if specific light sources are used. The requirements for signs will apply statewide and will not depend on lighting zone.

CALL FOR ARTICLES

The editors of *Sol*Air* are interested in submissions of technical articles related to the field of HVAC. We are interested in new information and technology. Please send inquiries to swells@wasocal.com or smckeown@wasocal.com.

**Our thoughts go out
to the victims affected
by the devastation of
Hurricane Katrina.**



Be our guest ... and attend this live, satellite broadcast from Trane, a business of American Standard companies

ASHRAE Standard 62.1-2004: Ventilation Requirements

when

**Wednesday,
26 October 2005**

**8:30am – 9:00am -
Breakfast**

**9:00am – 10:30 am -
Broadcast**

**10:30 am – 11:00 am -
Questions and Answers
with Dennis Stanke**

where

**Trane - Industry
17760 Rowland Street
Industry, CA 91748**

North of the 60 freeway,
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*Yes! I plan to attend this
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**ASHRAE
Standard 62.1-2004:
Ventilation Requirements**

The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recently updated ASHRAE Standard 62.1, *Ventilation for Acceptable Indoor Air Quality*. This broadcast explains the new Ventilation Rate Procedure for calculating zone and system ventilation airflow.

Why should you attend this live satellite forum?

- Your customers expect you to understand the latest ASHRAE 62.1-2004 ventilation requirements
- New ventilation rates for people- and building-related sources can reduce OA-intake requirements and associated costs
- Prescribed calculation procedures can increase consistency among designers, leveling the playing field
- Live Questions and Answers with Dennis Stanke, Trane Staff Applications Engineer, ASHRAE Chairman, SSPC 62.1 (the Standing Standards Project Committee charged with maintenance of Standard 62.1)

What can you expect to learn from this broadcast?

- What changes were made to zone ventilation requirements and to zone- and system-level calculations
- How to take "ventilation credit" for population diversity in multiple-zone systems and local recirculation in dual-path systems

How do you register for this event?

- Complete the form provided below.
- Contact your Trane sales office with this information.
- Registration deadline: **Friday, October 21, 2005**

To register: fax this form to **(626) 913-7153**, or e-mail this information to <mailto:tthamawatanakul@trane.com>.

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SOUTHERN CALIFORNIA CHAPTER PROGRAM SCHEDULE

October 4, 2005: Energy Night

Tech Program: Air Duct Leakage - TAB Techniques and Procedures
Speaker: Eddie Alejandro, Los Angeles 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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