



Coming Soon

SDG&E Offers New Training Courses

San Diego Gas and Electric is now offering the following free seminars for design professionals. All of these programs qualify for Learning Units. Courses marked with an asterisk also qualify for Health, Safety, Welfare (HSW) hours. Credits will be reported directly to the AIA/CES for AIA members. Space is limited, so be sure to reserve your place at least one week in advance. To register, contact Virginia (Ginny) Vaplon by phone at 858.636.5726 or by e-mail at vvplon@sdge.com.

Thursday, March 22

Daylighting and High-Performance Windows*

Trainers: Barbara Erwine and James O'Bannon, Ph.D.

Daylighting is linked with increased sales in retail buildings and better student test performance in schools. Learn how to quantify the benefits of daylighting in commercial projects, and get an overview of basic daylighting design principles. In addition, this course will cover new fenestration requirements, and how to select windows for maximum energy efficiency and comfort while meeting new building codes and installation standards.

11:30 a.m. to 4:30 p.m.

Ridgehaven Building

City of San Diego Environmental Services Department

9601 Ridgehaven Court
San Diego, CA 92123

Thursday, April 26

Mechanical System Design and Modeling Using EnergyPro 3.0

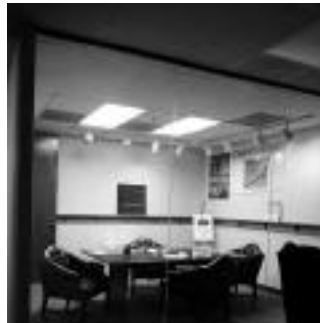
Trainers: Martyn Dodd and Tom Lunneberg, PE Practice using the latest version of EnergyPro, the state-certified energy modeling software, to model mechanical system designs in commercial buildings and to document Title 24 compliance. Learn how easy it can be to integrate mechanical, lighting and envelope designs for peak energy performance. See examples of advance mechanical designs that are yielding significant energy-efficiency incentives through the Savings By Design program.

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Visit the EDR website at:

www.energydesignresources.com

BUILDING OPERATORS BREATHE EASIER WITH LOWER ENERGY COSTS FROM CO₂-CONTROLLED VENTILATION



Credit: Ron Coppack Photography, Inc.

CO₂-controlled ventilation is ideally suited to buildings or rooms within buildings that are occupied on an unpredictable schedule, such as multi-tenant offices and meeting rooms.

Are your clients looking for greater energy efficiency in their projects? Your building design can deliver it with the energy savings of outside air intakes that are automatically controlled according to the carbon dioxide (CO₂) concentrations in indoor air. This technology cuts back on the energy costs of over-ventilation and helps maintain sufficient ventilation levels to safeguard indoor air quality (IAQ).

CO₂ controls have been used for ventilation adjustment since 1975,

but the recent emphasis on energy efficiency and the use of CO₂ ratios to set ventilation levels has increased interest in this type of control instrument. It's a mature technology that is appropriate in such building types as high-rise and low-rise office buildings, retail stores, foodservice outlets, institutional buildings, and arenas. This technology is best suited to buildings or rooms within buildings that are occupied on an unpredictable schedule, such as multi-tenant offices, meeting rooms, and lunch rooms.

Many ventilation requirements and recommendations are measured in outdoor airflow rates per person. This means that ventilation systems are designed to provide a minimum level of outdoor air based on the designed occupancy level multiplied by the per-person ventilation requirement. Because the indoor generation rate of CO₂ is dependent on the number of occupants, indoor CO₂ concentrations can be used as a way to control outdoor air intake based on the actual number of occupants in the space as opposed to the design occupancy. This type of demand-controlled ventilation offers the possibility of reducing the energy penalty of overventilation during periods of low occupancy while still making sure the space has adequate outdoor air ventilation.

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8:30 a.m. to 11:30 a.m.
San Diego Gas & Electric
8326 Century Park Court (Building 6)
San Diego, CA 92123

Thursday, April 26

Advanced Building Modeling with EnergyPro 3.0

Trainer: Martyn Dodd

Expand your basic knowledge of EnergyPro, the state-certified energy modeling software, to produce designs that perform better than the minimum Title 24 energy standards. Get hands-on experience in modeling and upgrading envelope, lighting and mechanical designs to maximize potential energy-efficiency incentives. Practice estimation utility energy costs, simple paybacks, and life cycle costs.

1:00 p.m. to 4:30 p.m.

SDG&E, CP6, Room 6126

Thursday, May 10

High-Performance Design Strategies for Lighting, Windows, and Building Envelopes with EnergyPro 3.0

Trainers: Martyn Dodd, Keith Thompson, and James O'Bannon

Practice using EnergyPro 3.0, the latest version of the state-certified energy modeling software, to model and document Title 24 compliance for commercial lighting designs and building envelopes. Explore advanced envelope design options, lighting analysis basics, the proper application of advance fixture technologies to energy-efficient designs, and how cost-effective lighting designs can maximize potential energy-efficiency incentives. Learn about new fenestration requirements and how to select windows for maximum energy efficiency and comfort.

8:30 a.m. to 4:00 p.m.

SDG&E, CP6, Room 6126

In addition, these CO₂-based control systems have an advantage in situations where spaces are occupied beyond the design occupancy levels: they can also help to safeguard IAQ.

HOW THE SYSTEM WORKS

A wall- or duct-mounted CO₂ sensor controls the volume of ventilation air moving through a common fresh-air intake according to the indoor CO₂ concentration. The monitor may be equipped with a direct readout and/or arranged for remote control with a 4-20 mA output circuit. The sensor may be based on infrared or chemical reactants. Portable, battery-driven units are available and hard-wired, fixed units require a 24-volt power supply.

There should be at least one control for each ventilation system. The control adjusts the ventilation air flow to maintain a building CO₂ concentration of 600 to 1000 ppm. A building average concentration can be maintained with one CO₂ sensor mounted in a washroom exhaust duct. This duct typically mixes air of equal volumes from each floor, providing an average reading for an entire building.

However, measurement at one point in a building may not be enough control of ventilation in all parts of the building. The building design can remedy this by interconnecting a number of controllers with the energy management system for a more coordinated result. This way, the building operator can manage the central ventilation system to maintain an average CO₂ level throughout the building or to maintain a set CO₂ level in the building zone with the greatest need for good indoor air quality. A ventilation purge cycle is often used prior to morning occupancy to remove indoor contaminants that accumulate overnight.

While early installations of CO₂-based ventilation control required frequent recalibration of the sensors, current technology lets manufacturers guarantee a limited drift of as little as three percent per year. The working lifetime of today's sensors is approximately 10 years.

For more information on CO₂-controlled ventilation systems, you can visit the Advanced Buildings Technologies & Practices site, which was the resource for much of this article:

www.advancedbuildings.org

Another resource used for this article was a paper entitled Application of CO₂-Based Demand-Controlled Ventilation Using ASHRAE Standard 62: Optimizing Energy Use and Ventilation by Mike B. Schell et al, available at:

www.confex2.com/store/items/ashrae/TO-98-21-1.htm

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2001 SAVINGS BY DESIGN AWARDS COMPETITION ANNOUNCED

The Savings By Design Program is partnering with The American Institute of Architects, California Council (AIACC) to recognize commercial projects that successfully integrate architectural excellence and energy efficient design. The 2001 Savings By Design Energy Efficiency Integration Awards will be bestowed upon those architects who have achieved exceptional results in the areas of:

- architectural design,
- energy performance,
- innovative treatment of energy-related elements and technologies,
- environmentally sensitive design, and
- creativity.

To be eligible, each award entrant must be a licensed architect, a member of AIACC, and a member of the design team for the project submitted. The projects must be nonresidential buildings projects completed after January 1, 1998 that are located in California.

This year's distinguished jurors include:

- Hank Koning, FAIA, of Koning Eizenberg Architecture, Santa Monica, Calif.
- Gail A. Lindsey, FAIA founder and president of Design Harmony, Inc., Wake Forest, N.C.
- Daniel H. Nall, AIA, P.E., Senior Vice President and Director of Advanced Technology for Flack and Kurtz Consulting Engineers in New York.

The 2001 Savings By Design Energy Efficiency Integration Awards will be presented in conjunction with the Annual AIACC Awards Presentation on Friday, June 29, 2001, at the Regal Biltmore Hotel in downtown Los Angeles.

The official Call for Entries will soon be mailed to all AIACC members. To enter the competition, entrants must complete and return the registration form included in the call for entries brochure by April 13, 2001, along with \$50. Upon receipt of the registration form and fee, Savings By Design will mail a detailed explanation of the requirements, including a submittal binder. The completed submittal binders must be received by Savings By Design no later than May 11, 2001.

For further information, please contact Carol Jester at (626) 812-7329. 