



**SMUD**

SACRAMENTO MUNICIPAL UTILITY DISTRICT

**ENERGY & TECHNOLOGY CENTER**  
**Spring 2010**

[www.smud.org/etc](http://www.smud.org/etc)

916.732.6738

**California Title 24 Building Energy Code Changes for Residential Envelopes**  
**March 3, 2010**

**8:00 a.m. – Noon (No Charge)**

The building envelope has always been an important part of the energy efficiency of homes, and its efficiency includes much more than just the R-value of the wall, ceiling, and floor insulation. Technologies like radiant barriers, cool roofs, and “quality insulation installation” are improving the energy efficiency of homes. This class, taught by Gary Wollin of Douglas Beaman Associates, will review the Title 24 Building Envelope Standards with particular emphasis on energy efficiency and the building envelope changes of the 2008 Energy Efficiency Standards.

**Designing with Light (for residential renters and homeowners)**

**March 4, 2010**

**6:00 p.m. – 8:30 p.m. (No Charge)**

Come and learn about the many ways to light your home while improving its look, feel, and energy efficiency! This evening session will cover general types of lighting in addition to specific lighting tools and tricks for different rooms in a home.

**Certified Green Building Professional**

**March 8 & 9, 2010**

**8:30 a.m. – 5:00 p.m. (Fees apply. See [www.builditgreen.org](http://www.builditgreen.org))**

As green building becomes more popular, homeowners and those purchasing homes are looking for contractors, architects, engineers, specialty contractors, and real estate professionals who are qualified to provide green building services. The Certified Green Building Professional (CGBP) training is open to all California building professionals involved in the design and construction of residential buildings, as well as to professionals that support and develop the market for green building. Training participants attend a two-day, 16-hour course based on the overarching principles of green building and the systems approach to the design, construction and operation of buildings. The course is followed by a written certification exam. **(For more information or to register, go to [www.builditgreen.org](http://www.builditgreen.org) or call 510-845-0472 ext. 603.)**

## **Advanced Certified Green Building Professional**

**March 10 & 11, 2010**

**8:30 a.m. – 5:00 p.m. (Fees apply. See [www.builditgreen.org](http://www.builditgreen.org))**

In today's economy 95% of the construction market is existing homes. 70% of the existing housing stock in California was built prior to the development of the Title-24 Energy Code, and provide a great opportunity for energy upgrades as well as improving resource conservation and indoor air quality. Learn step-by-step how to effectively design new, or upgrade and remodel, using a whole house approach. Participants will be guided through the details of a comprehensive green home analysis with solutions to energy and water conservation and improved indoor air quality. The course offers an understanding of energy performance testing, water heating, HVAC, mechanical ventilation, insulation and weatherization, lighting and moisture management. This course expands on the basic Certified Green Building Professional (CGBP) training course and provides 16 CEUs recertification credit. Prerequisite: CGBP or equivalent green building certification. **(For more information or to register, go to [www.builditgreen.org](http://www.builditgreen.org) or call 510-845-0472 ext. 603.)**

## **Home Performance with ENERGY STAR**

**Level 1: March 16 – 18, 2010**

**Level 2: April 6 – 8, 2010**

**Level 3: May 4 - 6, 2010**

**8:00 a.m. – 4:00 p.m. (Fees apply. See [www.cbpc.org](http://www.cbpc.org))**

During this 9-day intensive home performance training series, composed of Levels 1, 2, and 3, California Building Performance Contractor Association instructors will teach whole-house energy efficiency and building performance testing, evaluation, and contracting for upgrading existing residential houses to improve comfort, safety, health, durability and energy efficiency. This training series is designed for remodelers, HVAC contractors, solar contractors, insulation contractors, or anybody with a serious interest in developing a business in whole-house energy efficiency retrofitting or remodeling. Those who complete the series will be eligible to test for Building Performance Institute (BPI) certification. **(For more information or to register, go to [www.cbpc.org](http://www.cbpc.org) or call 888-931-1116.)**

## **Outdoor Lighting for Your Home (for homeowners)**

**March 18, 2010**

**6:00 p.m. – 8:00 p.m. (No Charge)**

Make your home come to life at night with this session on outdoor lighting. Learn important considerations of outdoor lighting as well as techniques for entryways, landscaping, tree lighting, and more.

## **Color and Light**

**March 24, 2010**

**8:30 a.m. – Noon (No Charge)**

Please join us as Tom Tolen, LC, presents the unique correlation between color and light. This presentation will demonstrate the importance lighting has on interior as well as exterior color perception. Skills to effectively use lighting to enhance your projects as well as identifying common mistakes will be presented. Remember, lighting can be used as a powerful tool.

## **Building Operator Certification: Level 2**

**March 24, April 21, May 19 & 20, June 23, July 21, August 25, 2010**

**(Participation on all dates is required for course completion)**

**8:00 a.m. – 4:00 p.m.**

**(\$1295 single registrant, \$895 additional registrants from same company)**

Building Operator Certification (BOC) is a competency-based training and certification for commercial building operators offering improved job skills and more comfortable, efficient facilities. Course series consists of classroom training, project assignments, and in-class exams administered at the end of each day of training. Level 2 topics include preventive maintenance and troubleshooting principles, advanced electrical diagnostics, HVAC troubleshooting and maintenance, HVAC controls and optimization, building commissioning, enhanced automation, and demand reduction. Prior to registration, it is highly recommended that participants have one of the following qualifications: 1) a technical degree and three years of experience working in operations and maintenance of a commercial or institutional facility; 2) a union membership at journey level and three years of experience; or 3) BOC Level I certification and four years of experience.

## **California Title 24 Building Energy Code Changes for Nonresidential Mechanical Systems**

**March 25, 2010**

**8:00 a.m. – Noon (No Charge)**

In this half-day course, Martyn Dodd of EnergySoft will detail the changes prescribed in the 2008 California Building Energy Efficiency Standards as they relate to nonresidential HVAC systems. Topics covered will include automatic fault detection diagnostic systems, new requirements for single-zone variable air volume equipment, refrigerated warehouse requirements, and changes to control system standards.

## **Energy Efficiency for Business Technology**

**March 30, 2010**

**9:00 a.m. – 4:30 p.m. (No Charge)**

Information technology is growing in importance and energy consumption, no matter the size of your business. Significant opportunities are available to improve computational energy efficiency, as well as the efficiency of the infrastructure that provides power and cooling to the computer equipment. This workshop, presented by Mark Hydeman, P.E., of Taylor Engineering, Mark Bramfitt, P.E., consultant, and Ray Pfeifer, of SynapSense, will provide state-of-the-art strategies to improve operation efficiency and increase capacity of existing data centers, including server virtualization, power management, and HVAC equipment optimization. The workshop includes a technology fair where vendors and suppliers will be able to provide information and answer questions.

## **ACCA Manual J Equipment Sizing and Selection**

**April 1, 2010**

**8:00 a.m. – 4:00 p.m. (No Charge)**

The Air Conditioning Contractors of America (ACCA) Manual J Residential Load Calculation Method is one of the most widely used methods of calculating residential heating and cooling loads. A heating and cooling load calculation is required for new construction and residential HVAC system change-outs. Contractors using ACCA Manual D to design their duct systems must use a room-by-room load calculation. This computer-based class, presented by Gary Wollin of Douglas Beaman Associates, will show participants how to use ACCA approved software to generate both whole house loads and room-by-room load calculations.

**Attendees must bring a laptop to class and will be provided a tutorial version of Wrightsoft; computers will *not* be provided.**

## **LEED Green Associate Examination Prep Workshop**

**April 7, 2010**

**8:00 a.m. – 4:30 p.m. (Registration fees apply. See [www.usgbc-ncc.org](http://www.usgbc-ncc.org))**

The LEED (Leadership in Energy & Environmental Design) Green Associate credential is for professionals who want to demonstrate green building expertise in non-technical fields of practice. The workshop focuses on the key information necessary to pass the LEED Green Associate exam, including the following: the LEED implementation process, project site factors, water management, energy impacts, synergistic opportunities, stakeholder involvement in innovation, project surroundings, public outreach, and test taking tips and strategies. Participants will receive an eligibility certificate to take the LEED Green Associate exam upon completion of this course. **(For more information or to register, go to [www.usgbc-ncc.org](http://www.usgbc-ncc.org) or call 415-738-5528.)**

## **2008 Title 24 - Lighting Changes to the California Building Energy Code**

**April 8, 2010**

**8:30 a.m. – Noon (No Charge)**

During this seminar, Martyn Dodd will provide information on the Title 24 Energy Efficiency Standards for Nonresidential Lighting Systems, which took effect January 1, 2010. Changes that will be discussed include the following: reduction in lighting power density for the complete building method, area category and tailored methods; controls including shut-off requirements, demand response, dimmable ballasts, and signage lighting controls; LEDs; daylit areas; and outdoor lighting.

## **Quality Insulation Installation**

**April 13, 2010**

**8:00 a.m. – Noon (No Charge)**

The effectiveness of insulation is much more than just the R-value of the wall, ceiling and floor insulation. Proper installation of the insulation is a major factor in its overall effectiveness. This class, presented by Gary Wollin of Douglas Beaman Associates, reviews the elements of Quality Insulation Installation. Architectural complexity of a home can make quality insulation more difficult, so understanding quality insulation is important, not just for the installer, but equally important for builders and designers.

## **Residential EnergyPro Software Training**

**April 27, 2010 (No Charge)**

**8:00 a.m. – Noon: EnergyPro Overview**

**1:00 p.m. – 5:00 p.m.: EnergyPro for Existing Building Ratings**

Martyn Dodd with EnergySoft will present a hands-on class aimed at people using EnergyPro for modeling low-rise residential buildings. The morning session will cover general use of the software, including Title 24 compliance. The afternoon will focus on the HERS Phase II and GreenPoint Rated capabilities in the software aimed at Whole House Ratings for existing residential buildings. Participants are encouraged to bring a laptop with EnergyPro Version 5 installed to follow along.

## **Residential HVAC Changes of the 2008 Title 24 Energy Code**

**May 4, 2010**

**8:00 a.m. – Noon (No Charge)**

During this workshop, Gary Wollin of Douglas Beaman Associates will cover changes to the Title 24 Residential Energy Efficiency Code for mechanical systems. These changes include new requirements for refrigerant charge, mandatory mechanical ventilation, and new CF-6R forms. This class will focus on the new rules and regulations for the 2008 Energy Efficiency Standards for Buildings and how they impact duct installation, sealing and testing, ventilation, quality installation standards, time dependant evaluation impacts, and HERS rater participation.

## **ACCA Manual D Duct Design**

**May 11, 2010**

**8:00 a.m. – 4:00 p.m. (No Charge)**

The Air Conditioning Contractors of America (ACCA) Manual D Duct Design is the industry standard method for the design and sizing of residential heating and cooling duct systems. This class, presented by Gary Wollin of Douglas Beaman Associates, will teach you how to perform a Manual D duct design by hand and will demonstrate Manual D computer software. The class teaches participants how to size ducts based on the load for each room and explains other factors in system performance. Manual D is used primarily in the design of systems for new construction, but the principles can be used to improve the performance of systems in existing homes. It is recommended that participants attend an ACCA Manual J class prior to attending this class. **Attendees must bring a laptop to class and will be provided a tutorial version of Wrightsoft; computers will not be provided.**

## **Energy Efficiency Financing and Incentive Programs**

**May 13, 2010**

**8:00 a.m. – Noon (No Charge)**

This seminar will focus on energy efficiency incentive programs offered by SMUD, the State of California, the Federal Government, regional government agencies, and other utilities all aimed at encouraging energy efficiency improvements in residential and nonresidential buildings. The class, presented by Marc Connerly of Connerly and Associates, is for architects, contractors, and commercial building owners and managers to learn about financing and incentive programs targeting solar, insulation, HVAC, lighting, and cool roofing improvements. Also provided will be copies of related program information, instructions, and applications.

## **Integrated Design Standards**

**May 18, 2010**

**9:00 a.m. - Noon (No Charge)**

For well over a decade, architects, developers and others have realized that working with the entire building design team early in the design process is the key to achieving the optimal sustainable outcome. Many designers say they are practicing “integrative design,” but until the recent approval of the Whole Systems Integrated Process Guide (WSIP) 2007 for Sustainable Buildings & Communities, ANSI/MTS Standard WSIP 2007, this method of designing had not been codified in the form of a specific integrated design process. Join Sean Culman, AIA, to develop a greater understanding of how this Standard Guide supports the building industry in the practice of Integrative Design in order to optimize the integration of complex systems while pursuing sustainable practices in design and construction. Through theoretical and real word projects, Sean will demonstrate how the pattern of practicing an integrated design process achieves more cost effective and environmentally effective performance in our buildings.

**Commercial Building Benchmarking and ENERGY STAR Portfolio Manager  
May 19, 2010**

**8:00 a.m. – Noon (No Charge)**

Benchmarking allows a building owner to continually track and compare his/her building's energy use against that of similar buildings. These comparisons are critical to successful energy management, as they can be enlightening and a strong motivator to improve building performance. Additionally, being able to document a building's energy efficiency provides a basis to communicate an environmentally-friendly image to prospective clients, buyers, or lessees. This class, presented by Devan Johnson, P.E., of kW Engineering, will describe the whats, whys, and hows of commercial building benchmarking, with focus on utilizing the EnergyStar Portfolio Manager.

**Residential HVAC Change-outs: Duct Testing Requirements**

**May 26, 2010**

**8:00 a.m. – 3:00 p.m. (No Charge)**

The 2008 Title 24 California Residential Building Energy Efficiency Standards, effective January 1, 2010, include significant changes for HVAC contractors. In some climate zones, when a HVAC system is installed or replaced, the duct system must be sealed and tested, the refrigerant charge measured, system airflow measured and the watt draw of the indoor fan measured. In this class, presented by Gary Wollin of Douglas Beaman Associates, learn when each of these steps must be completed, when a HERS rater must verify the system, and how to complete the required documentation.

**LightFair & LED Update**

**June 9, 2010**

**8:30 a.m. – Noon (No Charge)**

Please join SMUD's Emerging Technology Project Manager as well as SMUD's Lighting Specialist as they present the latest and greatest lighting technology introduced at LightFair 2010. Also included will be an update on LED lighting technology, including Department of Energy research, Energy Star's status, and categories of products worth mentioning. The presentation will be completed with recommendations on how and where to use this new technology.

## **Sustainability in Sports Architecture**

**Date: TBD**

**Time: TBD (No Charge)**

Recently named to Mayor Johnson's 'Sacramento First' arena task force team, architect Dan Meis, managing partner with the architectural firm Aedas Sport, is no stranger to designing acclaimed sports, entertainment, and convention facilities. His accolades include the Staples Center in Los Angeles, the Dodge Theater in Phoenix, Miller Park in Milwaukee, Safeco Field in Seattle, Lincoln Financial Field in Philadelphia, Paul Brown Stadium in Cincinnati, and Time Magazine's "100 Innovators in the World of Sports." His most recent project, the Los Angeles Stadium, is slated to be the first LEED certified stadium. Come hear Dan speak about his projects and how sustainability is changing sports architecture.