

LGEP

Website Workshops Listing

LGEP can also direct you to the following workshops sponsored by other organizations and programs . Please call Bruce Chamberlain at 510-482-4420 x227 or email bruce@energy-solution.com.

Subject Category	Title	Description	Start Date	End Date
Energy Efficiency Project Financing	Money for your Energy Upgrades	In today's tight economy, operating and capital budgets are being reduced despite increasing infrastructure needs. This 60-75 minute session focuses on using operating budgets as a potential source of "revenue" to pay for energy efficiency projects. Public sector financing options are discussed, including an overview of tax-exempt lease purchase agreements and energy service performance contracts. In addition, the Cash Flow Opportunity Calculator (CFO Calculator), a model that calculates the costs of delaying energy efficiency improvements, is introduced.	Wednesday, February 02, 2005	
Operations & Maintenance	Motor Fundamentals: Repair versus Replace	Compare the costs of "premium efficiency" motors with the alternative costs of rewinding a motor. Also, this presentation covers criteria for efficiently replacing and rewinding motors.	Wednesday, February 02, 2005	
Energy Efficiency Planning and Design	Sustainable Products Training	The Event will cover credible, transparent, consensus and life cycle based Sustainable Products Standards and products meeting them, such as the Unified Sustainable Textile Standard© for carpet, fabric & apparel. The Event's purpose is to educate important decision makers about these Standards and products meeting them, to increase their market penetration and the subsequent global environmental, social and economic benefits. All participants receive the 700 page peer reviewed Sustainable Products Training Manual©, continuing education credits and organic meals. The Event also has an Exhibitor display including clean vehicles, a 200% Green Power Offset improving Bay Area Air Quality, and national experts on sustainable products, green buildings, and clean vehicles.	Wednesday, February 02, 2005	Thursday, February 03, 2005
Energy Efficiency Planning and Design	CHPS Maintenance & Operations Seminar	This half-day seminar will cover the newest CHPS Best Practices Manual (Volume IV) on maintaining and operating schools. Instructors will present an overview of guidelines pertaining to the following: maintenance (HVAC systems, plumbing, building envelope, lighting, and electrical equipment), custodial (recycling, waste management, and cleaning products), and buildings and grounds (landscaping and snow removal).	Thursday, February 10, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Packaged HVAC: Economizers, Compressors, Diagnostics	Discover the energy-saving opportunities for maintaining or retrofitting packaged HVAC units. This class will specifically address economizer performance, compressor cycling, evaporative cooling and the manufacturer's efficiency rating. The program begins with a review of packaged unit components and covers dampers, filters, cooling coils, condenser and controls. Data collection fundamentals are presented, including programming, memory, logger placement and data analysis. Computers will be provided, and attendees will receive training on packaged unit diagnostics.	Saturday, February 12, 2005	

Subject Category	Title	Description	Start Date	End Date
Operations & Maintenance / Energy Efficiency Planning and Design	Higher Education ENERGY STAR Overview	This presentation offers a broad introduction to ENERGY STAR for colleges and universities. Learn about the range of program offerings, including technical assistance for campus building upgrades, purchasing strategies, IT system efficiency, financing advice and activities to engage students. During this 45-minute session you will learn about the strategy, products, services, and tools used to integrate ENERGY STAR in your organization. Who should participate? Facility, energy and business managers, procurement specialists, information technology staff, residence hall advisors, and other college and university personnel interested in a more environmentally friendly campus with less financial and energy waste.	Monday, February 14, 2005	
Energy Efficiency Planning and Design	Indirect/Direct Evaporative Cooling	information on combining Indirect Evaporative Cooling (IEC) and Direct Evaporative Cooling (DEC) for Indirect/Direct Evaporative Cooling (IDEC). Such systems can be very successful in western dry climates. Several proven design concepts and their resultant field performance will be reviewed and new ideas presented. The performance discussion will include maintenance issues as well as thermodynamic and economic performance.	Wednesday, February 16, 2005	
Energy Efficiency Planning and Design	Calculating Energy Savings	This introductory-level class is intended to develop the skills required by facility personnel to determine the energy savings of retrofit projects. Using example data sets from real projects, class attendees will immediately apply calculation methods learned in class. We will provide students with computers to assist with some of the more involved calculations and to familiarize attendees with data logger software. Attendees should have a working knowledge of Microsoft Windows software, especially MS Excel. We will review the current utility incentive programs available from PG&E for commercial building retrofit projects.	Wednesday, February 23, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Lighting Fundamentals	Lighting designer David Orgish will discuss lighting terminology, vision, light and color theory, electric light sources, luminaire design, controls, calculations, economics, and other lighting design considerations, such as psychological responses and basic design principles. Using the Pacific Energy Center's lighting classroom, he will demonstrate key concepts, providing a memorable and comprehensive overview of lighting fundamentals.	Wednesday, March 02, 2005	
Operations & Maintenance	Fundamentals of Compressed Air	Efficient use and maintenance of compressed air systems can provide energy efficiency improvements of 20 to 50 percent with relatively low project costs. In a collaborative effort with the California Energy Commission (CEC), Compressed Air Challenge, and the U.S. Dept. of Energy (DOE), this workshop introduces the mechanics of a compressed air system and the benefits of optimal compressed air system performance. The instructor will demonstrate how to compute the current cost of the compressed air systems in a facility, how to measure and create a baseline of performance, and how to determine the impact of different compressor control types. We will emphasize basic approaches to cut costs, identify steps for proper system operation, and develop a compressed air system management action plan.	Wednesday, March 02, 2005	
Energy Efficiency Planning and Design	Introduction to Grid-Connected Photovoltaics	During this 2-day workshop, the presenter will address the fundamental principles of grid-connected photovoltaic systems and applications, including terminology, net metering, system components, mounting options, system sizing, siting considerations, basic electrical code, and basic design. Whether you are seriously considering photovoltaics for your energy mix or thinking of "getting into the business," this workshop will present the technical information you need to evaluate the many technologies involved.	Wednesday, March 02, 2005	Thursday, March 03, 2005

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Operations & Maintenance / Energy Efficiency Planning and Design	Underfloor Air Systems	HVAC systems using Underfloor Air Distribution (UFAD) are increasingly being designed into both market-rate and green building projects. This course covers a broad overview of the topics and issues associated with employing UFAD.	Thursday, March 03, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Tankless Water Heaters	Learn the "ins" and "outs" of tankless water heaters, including the latest details on sizing, installation, operation, and repair. We encourage you to take advantage of this course along with "Water, Some Like It Hot" (planned for the same day), which complements "Tankless Water Heaters." Taking both classes provides a rare opportunity to learn the details of operating tankless water heaters and hot water distribution systems together. This course is sponsored by PG&E's Emerging Technology Program.	Thursday, March 03, 2005	
Energy Efficiency Planning and Design	Principles of Energy	What is the difference between a kilowatt and a kilowatt-hour? Why is gas measured in therms? How do you determine if HVAC equipment is energy-efficient? Why is the customer still cold when the thermostat says 78 degrees F? If heat doesn't rise, why is the ceiling warm? Learn the answers to these questions and other energy principles during this class.	Thursday, March 03, 2005	
Energy Efficiency Planning and Design	Operable Windows: A Panel Discussion	A panel comprised of an architect, mechanical and fire engineers, a facilities manager, and a researcher will offer perspectives on natural ventilation through operable windows. Topics covered will include the potential for energy savings, integrating operable windows with the building envelope and mechanical system, thermal comfort, occupant control, and smoke control.	Tuesday, March 08, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Compressorless Cooling	Come hear Steve Brennan of the nationally acclaimed Davis Energy Group "breeze" through the details on how to make compressorless cooling technologies work for your customers! Learn the details on: whole house fans, single-stage direct evaporative cooling, indirect/direct two-stage evaporative cooling, residential economizers, and utility rebates for whole house fans and evaporative coolers	Tuesday, March 08, 2005	
Energy Efficiency Planning and Design	Calculating Energy Savings	This class is for those interested in learning methods for calculating savings from energy-efficiency projects. Power and energy concepts will be covered along with the basics of utility rate schedules. Calculation methods will include single line equations using data from loggers and energy management systems. For more complicated project types, bin analysis methods and computer simulation will be demonstrated. A cost assessment discussion will include simple payback and internal rate of return calculations. This program is intended as a hand-on workshop and computers will be provided for in-class exercises.	Thursday, March 10, 2005	
Energy Efficiency Planning and Design	Richard Taylor: The Holistic Approach to Modern Lighting--International Style	Richard Taylor, Director of Trilux-Lenze GmbH + Co KG based in Germany, will entertain the notion that lighting designs must focus primarily on white-white color management and less on the dynamic effects possible with RGB-based sub-control systems. He will analyze human development and background, major concepts for visual performance in the built environment, the effect of brightness and color on the human being, installation ideas for modern lighting design applications, application-oriented lighting design, future trends in luminaire systems, and future trends in the lighting industry and draw these elements together to create the conceptual basis of a holistic approach to lighting design, both at a product and an installation level. This program is an advanced topic.	Thursday, March 10, 2005	

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Energy Efficiency Planning and Design	Calculating Energy Savings	This class is for those interested in learning methods for calculating savings from energy-efficiency projects. Power and energy concepts will be covered along with the basics of utility rate schedules. Calculation methods will include single line equations using data from loggers and energy management systems. For more complicated project types, bin analysis methods and computer simulation will be demonstrated. A cost assessment discussion will include simple payback and internal rate of return calculations. This program is intended as a hand-on workshop and computers will be provided for in-class exercises.	Friday, March 11, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Energy Auditing Techniques for Small Commercial Facilities	The intent of this two-day workshop is to develop the energy auditing skills of individuals associated with small-and medium-sized (under 500 kW) commercial facilities. Instructors will provide an overview of building technologies with an emphasis on distinguishing older, inefficient equipment from newer efficient systems. In-class exercises and a mock-audit at the end of the second day will allow the attendees to apply what they have learned. Though geared to the non-experts, attendees should have a fundamental understanding of building components and energy concepts.	Tuesday, March 15, 2005	Wednesday, March 16, 2005
Operations & Maintenance / Energy Efficiency Planning and Design	Insulate Right!	Learn about installation techniques and inspection criteria for ceiling and wall insulation. Using the ETC wall and attic insulation lab, the instructor will explain Proposed Title 24 Installation Standards, common installation mistakes, and how to avoid them.	Thursday, March 17, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Compressorless Cooling	Come hear Steve Brennan of the nationally acclaimed Davis Energy Group "breeze" through the details on how to make compressorless cooling technologies work for your customers! Learn the details on: whole house fans, single-stage direct evaporative cooling, indirect/direct two-stage evaporative cooling, residential economizers, and utility rebates for whole house fans and evaporative coolers	Tuesday, March 22, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	2nd Annual Water Conservation Showcase	This showcase will feature many new products available to help conserve water, a precious commodity in our drought-prevalent climate. The showcase will feature water-efficient systems for commercial buildings and landscape applications. There will also be presentations by government and industry leaders addressing California water issues and water-efficient design strategies. This program is co-sponsored with the Northern California Chapter of the U.S. Green Building Council.	Tuesday, March 22, 2005	
Energy Efficiency Planning and Design	Basics of Photovoltaic (PV) Systems for Grid-Tied Applications--An Online Class	Darren Bouton will provide a thorough overview of the fundamentals of solar electric systems, technically known as photovoltaics (PV). A discussion on PV system costs and payback will include systems ranging in size from less than 30 kilowatts (kW) to over 1 megawatt (MW). He will cover incentives from both the California Energy Commission (CEC) and Pacific Gas and Electric Company (PG&E).	Wednesday, March 23, 2005	
Operations & Maintenance	Moisture Intrusion	Learn from the expert: Dr. Jim O'Bannon. Jim O'Bannon is a professor in the Construction Management Department of California State University, Chico and author of the National Standards for Window Installations for the National Fenestration Rating Council (NFRC) and American Architectural Manufacturers Association (AAMA). He has also served as a builder-friendly expert witness in court cases. Highlights of this class include details on the causes of moisture intrusion; everything you ever wanted to know about molds; how to make corrections to moisture problems; the characteristics of building materials; and a host of facts, ideas, and solutions.	Thursday, March 24, 2005	

Subject Category	Title	Description	Start Date	End Date
Operations & Maintenance	Moisture Intrusion	Learn from the expert: Dr. Jim O'Bannon. Jim O'Bannon is a professor in the Construction Management Department of California State University, Chico and author of the National Standards for Window Installations for the National Fenestration Rating Council (NFRC) and American Architectural Manufacturers Association (AAMA). He has also served as a builder-friendly expert witness in court cases. Highlights of this class include details on the causes of moisture intrusion; everything you ever wanted to know about molds; how to make corrections to moisture problems; the characteristics of building materials; and a host of facts, ideas, and solutions.	Thursday, March 24, 2005	
Energy Efficiency Planning and Design	Building Integrated Photovoltaics	By simultaneously serving as building envelope material and power generator, building integrated photovoltaic systems can provide savings in materials and electricity costs, limit consumption of fossil fuels and emission of ozone depleting gases, and add architectural interest. Steven Strong will demonstrate current photovoltaic technologies and systems and illustrate recent building integrated photovoltaic applications by innovative designers in Europe, Japan, and the United States.	Thursday, March 24, 2005	
Energy Efficiency Planning and Design / Local Government Energy Policies	How to Specify Environmentally Preferable Lighting Equipment	There are substantial opportunities for architects, energy managers, building operators, and purchasing officials to reduce environmental impacts by specifying energy-efficient lamps and ballasts that also minimize mercury and lead content, improve lamp life, and optimize other performance criteria.	Tuesday, March 29, 2005	
Energy Efficiency Planning and Design	Advanced Photovoltaics (PV) for Grid-Tied Applications	This one-day course is for individuals who may be investigating and evaluating photovoltaic (PV) applications for their own facilities or their clients' and want to learn more about the technical aspects of PV. The class is designed for individuals who are already aware of the various types of PV modules available and who already have a general understanding of siting and design issues useful in evaluating grid-connected PV projects from a project manager's, architect's, and/or owner's perspective. These topics will not be discussed in this class. In addition, we will not cover benefits and costs of PV and the current financial incentives available in this class. If you are interested in this information, please register for Basics of Photovoltaic (PV) Systems for Grid-Tied Applications-- An Online Class, which is offered March 23.	Wednesday, March 30, 2005	
Energy Efficiency Planning and Design / Local Government Energy Policies	How to Specify Environmentally Preferable Lighting Equipment	There are substantial opportunities for architects, energy managers, building operators, and purchasing officials to reduce environmental impacts by specifying energy-efficient lamps and ballasts that also minimize mercury and lead content, improve lamp life, and optimize other performance criteria.	Thursday, March 31, 2005	
Energy Efficiency Planning and Design	Low Energy Cooling	Participants will learn about concepts for low-energy cooling. The Instructor will cover central system components such as cooling towers, night roof spray, and radiant floors. Package equipment, including evaporative coolers, ventilation air pre-cooling and DualCool will also be discussed.	Thursday, March 31, 2005	
Energy Efficiency Planning and Design / Operations & Maintenance	Title 24--Duct Installation Standards & Diagnostic Testing	This class includes a review of the current Title 24 New Construction Standards for airtight ducts; test and documentation requirements; and hands-on experience operating duct tester, flow hood, digital manometer, and blower door equipment. The instructor will provide a full explanation of UL181 requirements, approved materials, installation criteria, sealing and testing requirements, and duct installation. Students will receive binders with resource materials.	Tuesday, April 05, 2005	

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Operations & Maintenance / Energy Efficiency Planning and Design	Compressorless Cooling	Come hear Steve Brennan of the nationally acclaimed Davis Energy Group "breeze" through the details on how to make compressorless cooling technologies work for your customers! Learn the details on: whole house fans, single-stage direct evaporative cooling, indirect/direct two-stage evaporative cooling, residential economizers, and utility rebates for whole house fans and evaporative coolers	Tuesday, April 05, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Pumping System Assessment	This workshop, offered in collaboration with the California Energy Commission (CEC) and the U.S. Dept. of Energy (DOE), aims to identify opportunities to save energy by providing enhanced knowledge of pump system performance characteristics and identifying common problems encountered in facility applications. The practical focus includes field measurements of fluid and electrical data, and the course includes DOE's Pumping System Assessment Tool (PSAT) software. The instructor will demonstrate how PSAT works, what data are required, how to use the software when measured data are not available, and how to analyze the assessment results.	Tuesday, April 05, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Wireless Sensors for Building Controls Applications	There are tremendous energy efficiency and operational improvement opportunities in using wireless sensors and controls for building operation. In this seminar we will cover the current state-of-the-art in wireless sensors and discuss applications for wireless sensors in HVAC controls and energy monitoring applications, including case studies of wireless sensor installations.	Tuesday, April 05, 2005	
Energy Efficiency Planning and Design / Local Government Energy Policies	Kevin Hydes: New Developments for the USGBC's LEED Rating System	Kevin Hydes of Keen Engineering and Vice-Chair of the U.S. Green Building Council will discuss recent and upcoming developments in the LEED (tm) rating system. Hewill discuss evolution of the standard for New Construction and describe new developments in LEED (tm) standards for Existing Buildings, Commercial Interiors, Core andShell, Homes, and Neighborhood Developments.	Wednesday, April 06, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Tankless Water Heaters	Learn the "ins" and "outs" of tankless water heaters, including the latest details on sizing, installation, operation, and repair. We encourage you to take advantage of this course along with "Water, Some Like It Hot" (planned for the same day), which complements "Tankless Water Heaters." Taking both classes provides a rare opportunity to learn the details of operating tankless water heaters and hot water distribution systems together. This course is sponsored by PG&E's Emerging Technology Program.	Wednesday, April 06, 2005	
Energy Efficiency Planning and Design / Operations & Maintenance	Title 24--Equipment Sizing and Selection (ACCA Manual J)	In this course we will review ACCA load calculation and equipment selection process, room-by-room loads that lead into Manual D Duct Design (compliance credit component), safeguards for "right" sizing while avoiding undersizing, and ACCA-approved software. This course is a prerequisite for Title 24 - Zoning Design	Wednesday, April 06, 2005	
Energy Efficiency Planning and Design / Local Government Energy Policies	Exceeding Title 24 for Schools	Learn about energy efficiency strategies for exceeding Title 24 when designing school buildings. Charles Eley will present case studies and computer simulations to illustrate how appropriate design strategies vary by climate. He will also discuss how the Standards relate to the Savings by Design new construction incentive program, the LEED rating system, and the CHPS program.	Thursday, April 07, 2005	
Operations & Maintenance	Managing Hazardous Materials & Hazardous Waste	This seminar, presented by the Business Environmental Resource Center, will provide you information on managing hazardous materials, hazardous wastes, and universal waste in compliance with the latest codes and regulations.	Thursday, April 07, 2005	
Energy Efficiency Planning and Design / Local Government Energy Policies	How to Specify Environmentally Preferable Lighting Equipment	There are substantial opportunities for architects, energy managers, building operators, and purchasing officials to reduce environmental impacts by specifying energy-efficient lamps and ballasts that also minimize mercury and lead content, improve lamp life, and optimize other performance criteria.	Friday, April 08, 2005	

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Building Commissioning	Using the Cx+ Tool: A Web-based Resource for Commissioning Projects	This training session includes hands-on experience with Cx Assistant, a free interactive web-based tool provided through Energy Design Resources (www.energydesignresources.com). Several interactive exercises allow attendees to enter information into Cx Assistant, download documents, and discuss the Web tool's output.	Tuesday, April 12, 2005	
Operations & Maintenance	Steam System Assessment	The focus of this workshop is steam system efficiency improvement in the operation of typical systems. We are offering this course in collaboration with the California Energy Commission (CEC) and the U.S. Department. of Energy (DOE). Designed for energy managers, steam system supervisors, engineers, and equipment operators, the course covers three key areas of potential system improvement: steam generation efficiency; resource utilization effectiveness; and steam distribution system losses. The instructor will also introduce DOE's Steam System Scoping Tool (SSST), the Steam System Assessment Tool (SSAT), and the 3E Plus? insulation appraisal software.	Tuesday, April 12, 2005	
Operations & Maintenance	Pool Filtration at Half the Cost	This class focuses on pool pumping technology that can reduce a pool owner's filtration costs by 50%. Learn how to keep your customers happy, how to save them a bundle in the process, and how to give them a better option than resetting their timers. Yes, it is possible to have clean pools and big dollar savings!	Tuesday, April 12, 2005	
Energy Efficiency Planning and Design / Local Government Energy Policies	Exceeding Title 24 for Offices	Learn about energy efficiency strategies for exceeding Title 24 when designing office buildings. Charles Eley will present case studies and computer simulations to illustrate how appropriate design strategies vary by climate. He will also discuss how the Standards relate to the Savings by Design new construction incentive program, the LEED rating system, and the CHPS program.	Wednesday, April 13, 2005	
Operations & Maintenance	Regulation of Air Pollution & Economic Impacts	The Business Environmental Resource Center will give information on the most cost-effective air regulation compliance strategies, focusing on local, state, and federal air regulations that impact local organizations.	Thursday, April 14, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Compressorless Cooling	Come hear Steve Brennan of the nationally acclaimed Davis Energy Group "breeze" through the details on how to make compressorless cooling technologies work for your customers! Learn the details on: whole house fans, single-stage direct evaporative cooling, indirect/direct two-stage evaporative cooling, residential economizers, and utility rebates for whole house fans and evaporative coolers	Tuesday, April 19, 2005	
Operations & Maintenance	Pool Filtration at Half the Cost	This class focuses on pool pumping technology that can reduce a pool owner's filtration costs by 50%. Learn how to keep your customers happy, how to save them a bundle in the process, and how to give them a better option than resetting their timers. Yes, it is possible to have clean pools and big dollar savings!	Wednesday, April 20, 2005	
Energy Efficiency Planning and Design	Understanding Financial Analysis Methods for Photovoltaic (PV) Systems	Andy Black will provide an overview of solar electric (PV) system costs and approximate savings for commercial and residential systems. He will provide detailed information on each of the state and federal incentives available and how to apply and receive them. Incentives include rebates, tax credits, and depreciation. He will explain the choices for electric rate structures and the advantages of each relative to building load profile, system design, and site specifics (shading, orientation, etc). Andy will discuss the various methods of performing financial analyses in conjunction with the savings realized. Financial analysis methods presented will include Simple Payback, Internal Rate of Return (IRR), Cash Flow analysis, and appraisal resale value. He will provide interactive examples of residential, commercial, and non-taxable (nonprofit or government) sites, including discussion of the salient differences and advantages of each method. He will cover the assumptions and variables that affect each analysis, including inflation, maintenance expenses, and interest rates.	Thursday, April 21, 2005	

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Operations & Maintenance / Energy Efficiency Planning and Design	Packaged HVAC: Economizers, Compressors, Analysis	In this full-day seminar, we take a close look at this prevalent yet problematic equipment. The beginning of the class is an overview of the components of packaged units: compressors, condenser coils, evaporator coils, filters, economizer dampers, heating coils, fans, electric power supply, natural gas infrastructure and controls. The code compliant and optimal operation of each will be noted. Special attention is paid to the expected performance of airside economizers, compressor operation and control sequencing. As a measurement class, attendees will be exposed to tools and software that can help building operators and service technicians understand the operation of packaged units. We will provide training on the programming and data retrieval procedures for a variety of loggers. We will also cover temperature and humidity loggers that can be used to assess economizers and power meters that can be used to monitor compressor and supply air fan operation.	Tuesday, April 26, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Insulate Right!	Learn about installation techniques and inspection criteria for ceiling and wall insulation. Using the ETC wall and attic insulation lab, the instructor will explain Proposed Title 24 Installation Standards, common installation mistakes, and how to avoid them.	Tuesday, April 26, 2005	
Facility Tracking/Energy Accounting / Operations & Maintenance	New Developments in Demand Response (DR)	Demand Response is a set of activities to reduce or shift electricity use to improve the electric grid reliability and manage electricity costs. In this class we will focus on Automated Demand Response in which electric loads are shed automatically based on a remote signal. Although participants can choose to opt out if desired, Automated Demand Response systems can be designed to operate without human intervention. Speaker David Watson will discuss results from field tests conducted by Lawrence Berkeley National Laboratory in 2003 and 2004.	Thursday, April 28, 2005	
Facility Tracking/Energy	EnergyPro	EnergyPro is a comprehensive energy analysis program that performs multiple calculations and energy modeling for California Title 24 energy analysis of buildings, including both prescriptive and performance based approaches.	Thursday, April 28, 2005	
Energy Efficiency Planning and Design / Operations & Maintenance	Title 24--Duct Installation Standards & Diagnostic Testing	This class includes a review of the current Title 24 New Construction Standards for airtight ducts; test and documentation requirements; and hands-on experience operating duct tester, flow hood, digital manometer, and blower door equipment. The instructor will provide a full explanation of UL181 requirements, approved materials, installation criteria, sealing and testing requirements, and duct installation. Students will receive binders with resource materials.	Wednesday, May 04, 2005	
Operations & Maintenance	Moisture Intrusion	Learn from the expert: Dr. Jim O'Bannon. Jim O'Bannon is a professor in the Construction Management Department of California State University, Chico and author of the National Standards for Window Installations for the National Fenestration Rating Council (NFRC) and American Architectural Manufacturers Association (AAMA). He has also served as a builder-friendly expert witness in court cases. Highlights of this class include details on the causes of moisture intrusion; everything you ever wanted to know about molds; how to make corrections to moisture problems; the characteristics of building materials; and a host of facts, ideas, and solutions.	Thursday, May 05, 2005	

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Energy Efficiency Planning and Design / Operations & Maintenance	Title 24--Equipment Sizing and Selection (ACCA Manual J)	In this course we will review ACCA load calculation and equipment selection process, room-by-room loads that lead into Manual D Duct Design (compliance credit component), safeguards for "right" sizing while avoiding undersizing, and ACCA-approved software. This course is a prerequisite for Title 24 - Zoning Design	Thursday, May 05, 2005	
Energy Efficiency Planning and Design	Understanding Financial Analysis Methods for Photovoltaic (PV) Systems	Andy Black will provide an overview of solar electric (PV) system costs and approximate savings for commercial and residential systems. He will provide detailed information on each of the state and federal incentives available and how to apply and receive them. Incentives include rebates, tax credits, and depreciation. He will explain the choices for electric rate structures and the advantages of each relative to building load profile, system design, and site specifics (shading, orientation, etc). Andy will discuss the various methods of performing financial analyses in conjunction with the savings realized. Financial analysis methods presented will include Simple Payback, Internal Rate of Return (IRR), Cash Flow analysis, and appraisal resale value. He will provide interactive examples of residential, commercial, and non-taxable (nonprofit or government) sites, including discussion of the salient differences and advantages of each method. He will cover the assumptions and variables that affect each analysis, including inflation, maintenance expenses, and interest rates.	Tuesday, May 10, 2005	
Energy Efficiency Planning and Design	Assessing the Future of Green Building	The rate of adoption of green building practices will be a function of the context that shapes political and public priorities. Dr. Ray Cole, an internationally recognized expert on environmental building practices, leads an exploration of the current context and then compares and contrasts several short and long-term scenarios--some certain, others more speculative--and their direct and indirect consequences for environmental progress in building design.	Thursday, May 12, 2005	
Operations & Maintenance	Natural Gas Systems	The class will focus mainly on the combustion process, the furnace, package units, ventilation and heat recovery, and boilers for space and water heating. It will include strategies to reduce energy use in space heating and air-handling units with heating coils, their heating distribution systems, controls and energy management systems. Discuss tips for the building envelope and get the latest information on incentive programs available to cut the cost of your facility's energy efficiency projects.	Thursday, May 12, 2005	
Facility Tracking/Energy	EnergyPro	EnergyPro is a comprehensive energy analysis program that performs multiple calculations and energy modeling for California Title 24 energy analysis of buildings, including both prescriptive and performance based approaches.	Thursday, May 12, 2005	
Facility Tracking/Energy Accounting / Operations & Maintenance	Building Performance Investigations for Architects, Engineers, and Facility Operators	The primary objective of the workshop is to provide experience in the use of relatively low-cost instrumentation (coupled with a structured methodology) to better understand building system and component performance. Participants will be taught appropriate use of such instrumentation and methods to increase confidence in their ability to address building performance concerns. Students will develop a mini-case study to use as a template for future investigations.	Tuesday, May 17, 2005	

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Energy Efficiency Planning and Design	Principles of Energy	What is the difference between a kilowatt and a kilowatt-hour? Why is gas measured in therms? How do you determine if HVAC equipment is energy-efficient? Why is the customer still cold when the thermostat says 78 degrees F? If heat doesn't rise, why is the ceiling warm? Learn the answers to these questions and other energy principles during this class.	Tuesday, May 17, 2005	
Energy Efficiency Planning and Design	Green Building Materials Selection	Lynn N. Simon, AIA, of Simon & Associates, Inc., Green Building Consultants, will discuss the selection and specification of environmentally preferable building materials: products selected to conserve resources, reduce pollution and waste, protect indoor air quality, or to meet other green criteria during their lifecycle. Lynn will discuss materials selection in the context of the USGBC's LEED-NC and LEED-CI rating system credits, and will also discuss green product certification standards. The presentation will cover green interior materials and finishes as well as exterior materials--primarily for commercial projects.	Wednesday, May 18, 2005	
Facility Tracking/Energy Accounting / Operations & Maintenance	Building Performance Investigations for Architects, Engineers, and Facility Operators	The primary objective of the workshop is to provide experience in the use of relatively low-cost instrumentation (coupled with a structured methodology) to better understand building system and component performance. Participants will be taught appropriate use of such instrumentation and methods to increase confidence in their ability to address building performance concerns. Students will develop a mini-case study to use as a template for future investigations.	Wednesday, May 18, 2005	
Operations & Maintenance	Pool Filtration at Half the Cost	This class focuses on pool pumping technology that can reduce a pool owner's filtration costs by 50%. Learn how to keep your customers happy, how to save them a bundle in the process, and how to give them a better option than resetting their timers. Yes, it is possible to have clean pools and big dollar savings!	Wednesday, May 18, 2005	
Energy Efficiency Planning and Design	A Light Affair III	This event is co-sponsored with the Golden Gate Section of the Illuminating Engineering Society of North America and The Lighting Forum. Manufacturers will display and demonstrate the latest lighting products and technologies featured during LIGHTFAIR INTERNATIONAL 2005 held in New York City in April. Join us for an evening of refreshments and enlightenment.	Thursday, May 19, 2005	
Building Commissioning	Identifying and Assessing Common Retrocommissioning Opportunities	Topics will include utility consumption analysis and benchmarking, building documentation review, and site inspection and observation techniques. We will include staff interviews, noting obvious visible indicators, trending and data logging, and system configuration assessment.	Wednesday, May 25, 2005	
Energy Efficiency Planning and Design	Designing High Performance Schools	The Collaborative for High Performance Schools (CHPS) has released Volumes I, II and III of the 2005 Best Practices Manual. A diverse panel of experts will discuss the effect of daylighting design on student productivity, high performance electric lighting, optimized HVAC systems, sustainable site planning and materials, how to exceed 2005 Title 24 requirements, and available tools for design teams.	Wednesday, May 25, 2005	
Energy Efficiency Planning and Design	Geoexchange Alternative	Geoexchange systems (ground source heat pumps) use the earth as a heat source in the winter and a heat sink in the summer. In California, geoexchange savings can exceed 50% for heating and 30% for cooling. Such systems have been successfully installed throughout Northern California and have proven to be energy efficient. Take this opportunity to learn about ground source heat pump systems!	Wednesday, June 01, 2005	

Subject Category	Title	Description	Start Date	End Date
Energy Efficiency Planning and Design / Operations & Maintenance	Title 24--Duct Installation Standards & Diagnostic Testing	This class includes a review of the current Title 24 New Construction Standards for airtight ducts; test and documentation requirements; and hands-on experience operating duct tester, flow hood, digital manometer, and blower door equipment. The instructor will provide a full explanation of UL181 requirements, approved materials, installation criteria, sealing and testing requirements, and duct installation. Students will receive binders with resource materials.	Tuesday, June 07, 2005	
Energy Efficiency Planning and Design / Operations & Maintenance	Title 24--Equipment Sizing and Selection (ACCA Manual J)	In this course we will review ACCA load calculation and equipment selection process, room-by-room loads that lead into Manual D Duct Design (compliance credit component), safeguards for "right" sizing while avoiding undersizing, and ACCA-approved software. This course is a prerequisite for Title 24 - Zoning Design	Wednesday, June 08, 2005	
Energy Efficiency Planning and Design	Advanced Photovoltaics (PV) for Grid- Tied Applications	This one-day course is for individuals who may be investigating and evaluating photovoltaic (PV) applications for their own facilities or their clients' and want to learn more about the technical aspects of PV. The class is designed for individuals who are already aware of the various types of PV modules available and who already have a general understanding of siting and design issues useful in evaluating grid-connected PV projects from a project manager's, architect's, and/or owner's perspective. These topics will not be discussed in this class. In addition, we will not cover benefits and costs of PV and the current financial incentives available in this class. If you are interested in this information, please register for Basics of Photovoltaic (PV) Systems for Grid-Tied Applications-- An Online Class, which is offered March 23.	Thursday, June 09, 2005	
Building Commissioning	Exploring the New and Improved Functional Test Guide	The Functional Test Guide (a PIER and DOE sponsored tool targeted to provide technical guidance and support for the commissioning process) is currently undergoing a revision and expansion based on feedback from users of the first version. The new version will be released at the National Conference on Building Commissioning in early May 2005 and will include basic information on commissioning chilled water, heating water and condenser water systems, expanded content in the Integrated Operation chapter of the air handling system section and more functional tests. Owners, operators, and others associated with building operations will find the information to be of interest because the theory and techniques can be applied to the day-to-day operation and troubleshooting of building systems and continuous commissioning processes, enhancing the persistence of the benefits of new construction, and retrocommissioning processes.	Tuesday, June 14, 2005	
Building Commissioning	Identifying and Assessing Common Retrocommissioning Opportunities	Topics will include utility consumption analysis and benchmarking, building documentation review, and site inspection and observation techniques. We will include staff interviews, noting obvious visible indicators, trending and data logging, and system configuration assessment.	Wednesday, June 15, 2005	
Energy Efficiency Planning and Design	Evaluating Combined Heat and Power (CHP) Applications	This one-day course is for individuals who may be investigating and evaluating Combined Heat and Power (CHP) applications for their own facilities or their clients' facilities and want to learn more about CHP system analysis. The course is primarily directed at CHP applications for commercial buildings and industrial process facilities.	Thursday, June 16, 2005	

Subject Category	Title	Description	Start Date	End Date
Energy Efficiency Planning and Design	Green Building Materials Selection	Lynn N. Simon, AIA, of Simon & Associates, Inc., Green Building Consultants, will discuss the selection and specification of environmentally preferable building materials: products selected to conserve resources, reduce pollution and waste, protect indoor air quality, or to meet other green criteria during their lifecycle. Lynn will discuss materials selection in the context of the USGBC's LEED-NC and LEED-CI rating system credits, and will also discuss green product certification standards. The presentation will cover green interior materials and finishes as well as exterior materials--primarily for commercial projects.	Wednesday, June 22, 2005	
Operations & Maintenance	Pool Filtration at Half the Cost	This class focuses on pool pumping technology that can reduce a pool owner's filtration costs by 50%. Learn how to keep your customers happy, how to save them a bundle in the process, and how to give them a better option than resetting their timers. Yes, it is possible to have clean pools and big dollar savings!	Wednesday, June 22, 2005	
Facility Tracking/Energy	Energy Management Systems and Controls	Seminar attendees will hear a practical, systematic approach for identifying, designing, and planning the implementation of an energy management control system (EMS) to achieve maximum savings with currently available technologies. This course uses the example of heating and air conditioning (HVAC) system equipment managed by an EMS and describes current control methods, alternative levels of control, specific control points and techniques for air systems, direct expansion package units, central refrigeration, hot water boiler plants, and lighting systems. Beyond a review of common HVAC configurations and fundamentals of how an EMS works, the class includes an overview of communication networks, equipment studies, and a cost-benefit analysis.	Thursday, June 30, 2005	
Energy Efficiency Planning and Design	Implementing Energy Efficiency	Discuss options to survey and assess the energy usage at your facility, develop a plan for implementing energy efficiency projects that are appropriate and economically viable, and measure the savings achieved. Determine how to move from the general checklist or screening audit that identifies efficiency measures, through evaluation and cost-benefit data, to an in-depth feasibility study, which includes life cycle analysis of equipment replacement or upgrades. This class covers the design criteria to get a productive contractor bid, how to get the project implemented, then the start-up and often-forgotten commissioning issues.	Thursday, July 21, 2005	
Operations & Maintenance / Energy Efficiency Planning and Design	Motors and ASDs	Explore the principles of electric motors and the benefits of adjustable speed drives. The class includes a comparison of standard and rewind motors to new energy-efficient motors, and the criteria for making viable economic decisions in selecting energy-efficient motors. Special attention is given to how variable speed drives result in lower energy costs, extended equipment life and a reduction in overall maintenance costs. We discuss nameplate data, high-efficient motors load analysis, record keeping, motor maintenance, and motor replacement program development. Motor Master+® software (tips and information) is presented along with the incentive programs available to reduce your project costs. The class in Tulare is offered in cooperation with Southern California Edison's AgTAC facility.	Friday, July 22, 2005	
Building Commissioning	Collaborative for High Performance Schools Video Series	In these overviews, State Architect Stephan Castellanos introduces the purpose of this High Performance Schools video series and Commissioner Robert Pernell introduces the Collaborative for High Performance Schools (CHPS) and its resources.	any time	