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Conference Session  
Descriptions Inside!  
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# TAKE PART IN THE MOST EXCITING ELECTRIC WEST EVER!

## electric West 2005

**2005**  
is a  
**NEC® Change Year!**  
Get up to Speed and  
Earn CEUs!

**A CHOPPER  
INVASION!**  
See inside for  
details.



**ENTER TO WIN  
\$25,000!**  
Play the Visible  
Vault game!

Sponsored by:

**EC&M**

Electrical  
Wholesaling  
The International Society of Electrical Wholesalers

### Exposition & Conference

Tuesday-Thursday, February 8-10, 2005  
Anaheim Convention Center  
Anaheim, CA

### Professional Advancement Courses

Monday, February 7, 2005

## THERE'S NEVER BEEN AN ELECTRIC WEST LIKE THIS ONE!

*This year, you'll find more than aisle-after aisle of the latest electrical equipment, leading electrical suppliers and an outstanding conference program. The Electric Industry is evolving with new opportunities for electrical professionals — and Electric West is ready to help you take full advantage of them!*



- **3 NEW PAVILIONS & NEW CONFERENCE COURSES** representing some of the hottest niches in the Industry — renewables, home automation, and power quality

- **3 FREE SESSIONS!**  
See inside for details

- **MEET OUR KEYNOTE SPEAKER** — Reverend Gadget from the Discovery Channel's "Monster House" and "BIG!"



### 3 Ways to Register!

[www.electricshow.com](http://www.electricshow.com), call 800-927-5007, or use the registration form on page 14



# Here's What's Happening at

# electric West 2005

## An Outstanding Conference Program



with more than 50 informative courses on a variety of timely topics, including the NEC® (2005 is a code change year),

maintenance, power quality, focus on business, lighting, practical methods, renewable energy, and home technology integration. Register by January 9th and take advantage of Early Bird discount rates on conference sessions! See pages 4-13 for complete conference listings and descriptions.



## The Renowned Electric West Exhibit Hall!

Get the *right* product from the *right* vendor at the *right* price, quickly and easily! Meet with aisles of leading electrical equipment manufacturers and suppliers, all of whom will be displaying the latest innovations and products for you to inspect, demo, and price. **Best of all, exhibit hall admission is FREE if you pre-register at [www.electricshow.com](http://www.electricshow.com)! (\$20 at the door)** To view the exhibitor list visit our web site.

## 3 New Pavilions!

Representing some of the hottest niches in the industry – renewable energy, home automation, and power quality. Increasing demand for these systems is providing enormous opportunities for electrical professionals interested in offering and installing these products. **Grow your business** by meeting with manufacturers and suppliers who know the ins and outs of these high growth markets that electrical contractors, electrical engineers, and electricians are becoming increasingly involved in. See page 15 for details.

As the industry continues its rebound, several market segments stand out for their high growth potential. The increasing use of alternative energy sources, the move toward integrated systems and automation in homes and buildings, and a growing recognition of the need for power quality and reliability products and expertise are all creating new opportunities for electrical professionals.

So while Electric West continues to offer the same high quality courses and exhibitors we always have, we're also *adding* additional courses and new pavilions to help you learn about ways to get involved and take advantage of these high-growth markets. But we didn't stop there! This year's Show includes several courses on changes to the 2005 NEC®, as well dynamic speakers, numerous free sessions, and exciting contests and promotions. Read on for details!

## Meet our Keynote Speaker — Reverend Gadget

from the Discovery Channel's *Monster House* and *BIG!* Hear his Keynote Address on Tuesday, February 8, 9:00 am., and meet him that day in the Exhibit Hall as he creates one of his famous sculptures and kicks off our contest! See page 3 for details.



## FREE General Session!

**How to Increase Your Profits With Home Automation**  
Thursday, February 10, 8:30-9:30 am. Home automation is a hot growth area. Learn about ways to get involved in this industry segment that is providing increasing opportunities for electrical professionals. See page 3 for details.

## A Chopper Invasion!

Ideal ([www.idealindustries.com](http://www.idealindustries.com)) will be displaying and giving away a custom Orange County Choppers motorcycle! And Bikers Against Drunk Drivers ([www.baddcentral.com](http://www.baddcentral.com)) will be displaying and offering a chance to win one of 5 custom designed motorcycles!



## FREE! Ask the Experts: Topic — Power Quality.

Wednesday, February 9, 1-2 pm. Here's your chance to get answers to your most pressing power quality questions, as a panel led by EC&M Editorial Director John Dedad will answer your questions and discuss a variety of power quality topics. See page 3 for details.

## Enter to win \$25,000!

Play the Visible Vault game! Punch in the winning combination and you can win \$25,000 or one of several other prizes!



**Later Hours!** In response to your requests for later hours, the exhibit hall will be open from 12:00 p.m. - 7:00 p.m. on Wednesday, February 9 to better accommodate your work schedules.

**And Last But Not Least...** There will be a major contest on the Exposition Floor for electrical professionals! Numerous prizes will be awarded! Visit our website in December for details.

# Check Out These Free Sessions at Electric West!

**Tuesday, February 8, 2005 9:00 AM - 10:00 AM**

## KEYNOTE ADDRESS

### Reinventing with the Reverend: A Tradesman with a Twist

Reverend Gadget, Reverend Gadget Inc. and  
Discovery Channel's "Monster House" and "BIG!"



You may already know Reverend Gadget from his regular television appearances on the Discovery Channel's "Monster House," and more recently the weekly series, "BIG!," but chances are there is a lot more that you don't know about this fabricating dynamo. 'Gadget,' as his loyal fan base refers to him, has spent his life building an artistic resume that would undoubtedly challenge the search capabilities of today's monster.com. He's holds 9 Guinness Book World Records for designing and engineering the worlds largest "functional everyday objects"; he's designed and fabricated his own electric motorcycle; he's fabricated major props for movies such as the recent blockbuster, Spiderman; he's built solar-powered art cars and high-end furniture for some trendy local restaurants, including the LAX airport restaurant "Encounter", and the list goes on and on. But how does this progressive tradesman/ Reality TV star keep re-inventing himself? Whether you are an electrician or an engineer, Gadget leads you on a journey to better understand what it takes to do what you love and love what you do...because as he says; "If they say it can't be done, you're talking to the wrong people."



**Wednesday, February 9, 2005**

**1:00 PM - 2:00 PM**

### Power Quality — Ask The Experts Panel

Chair: John DeDad, EC&M

Here's your chance to get answers to your power quality questions. Attend this free session, pose your question and listen to this group of industry experts as they address pertinent topics and problem areas. Topic coverage will include harmonics, transients, grounding, waveform distortion, waveform signature analysis, power quality installation techniques, lightning protection, etc.



If you'd like to submit questions prior to the Panel Session, visit [www.electricshow.com](http://www.electricshow.com) and click on the "Ask the Experts" icon.



**Thursday, February 10, 2005**

**8:30 AM - 9:30 AM**

## GENERAL SESSION

### How to Increase Your Profits with Home Automation

Jay McClellan, President — Home Automation, Inc.

This presentation will cover the growth of the industry and the corresponding revenue opportunities for electricians. The four keys to success:

1. Select a quality product with the best price/performance ratio
2. Learn how to sell it effectively
3. Install with care and respect for the customer's property
4. Do it often.

This session will examine the 8 things to look for when selecting which products to install: Reliability, Price, Support, Flexibility, Retrofit capability, Network and expansion capacity, Internet interface capability, and Availability.



## The Following Products Will be on Display at Electric West

- Batteries & battery systems
- Building & home automation
- Busways & raceways
- Circuit protection
- Conduit fittings
- Construction site equipment
- Distribution equipment
- Enclosures
- Energy Management
- Fasteners
- Fiber optics
- Fire & safety alarms
- Grounding systems
- Lamps, lighting fixtures & controls
- Low-voltage systems
- Measuring, testing, locating equipment
- Motors & controls
- Meters
- Micro-Turbines
- Mounting hardware
- Photovoltaics
- Power conditioning equipment
- Power Sources: generator & stand-by
- Premise wiring
- Security systems
- Signaling systems
- Software systems
- Switching equipment
- Tools: power & hand
- TVSS
- Transformers
- UPS
- Voice, data & telecommunications products
- Wire & Cable
- Wind Energy Systems
- Wiring devices
- and much more!

## Electric West is for...

- Electrical Contractors
- Electricians
- Electrical Engineers
- Consulting Engineers
- Plant Engineers or Managers
- Company Presidents, Owners, and Partners
- Anyone involved in the electrical industry!



# The 17<sup>th</sup> Annual Western Electrical

## PROFESSIONAL ADVANCEMENT COURSES — MONDAY FEB. 7<sup>th</sup>


9:00 AM to 4:00 PM	<b>PA1</b>	<b>1 &amp; 2 Family Dwelling Electrical Systems</b> L. Keith Lofland International Assoc. of Electrical Inspectors	<b>PA2</b>	<b>The California 2005 Title 24 Energy Code</b> James Benya Benya Lighting Design	<b>PA3</b>	<b>Power Quality Technology to Improve Reliability</b> Mark McGranaghan EPRI PEAC
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## CONFERENCE-AT-A-GLANCE — TUESDAY-THURSDAY FEB. 8-10

Tuesday 2/8/05	9:00 - 10:00 AM (KEY) KEYNOTE: Reinventing with the Reverend: A Tradesman with a Twist — Reverend Gadget, from the Discovery Channel's						
	11:00 AM to 12:00 PM	101	Lighting for Hospitality & Residential Projects Under the 2005 CA Title 24 Energy Code James Benya, Benya Lighting Design	201	Dealing with Harmonic Distortion Problems Mark McGranaghan EPRI PEAC	301	Skill Sets for the Electrical Estimator Mike Hughes, Bergelectric; Jeff Margolis, Dynalectric Los Angeles; Dan Melroy, Neal Electric
	1:00 PM to 2:00 PM	102	2005 NEC® Code Basics Part I Richard Loyd R&N Associates	202	The Critical Need for Reliable Electrical Grounding Systems Steven Baretta Accurate Technical Services	302	Managing Your Material Pricing Brian Hoffelder Vision Training Services
	2:30 PM to 3:30 PM	103	2005 NEC® Code Basics Part II Richard Loyd R&N Associates	203	Lighting Protection from Top to Bottom Paul Resler National Lightning Protection Corporation	303	Web Based Collaboration — What's It All About? Jeff Burmeister Constructware
	4:00 PM to 5:00 PM	104	Stationary Batteries: Codes, Standards Conflicts and Confusion Steve McCluer American Power Conversion	204	Harmonics and Power Quality: Causes, Symptoms, & Solutions John DeDad EC&M	304	Sales and Marketing Essentials for Electrical Contractors Brian Hoffelder Vision Training Services
Wednesday 2/9/05	9:00 AM to 10:00 AM	105	Origin and Development of NFPA 900 — Building Energy Code Allan B. Fraser NFPA	205	Energy Efficient Motors and Transformers David Brender Copper Development Assoc., Inc.	305	DALI: A Look at the Newest Advance in Lighting Control Technology Charles Knuffke The Watt Stopper Inc.
	10:30 AM to 11:30 AM	106	Measuring Ground Fault Current Paul Hartman Six Sigma Solutions	206	Tackling Power Quality Problems David Mueller Electrotek Concepts. Inc.	306	Are You Prepared to Lose Everything? If Not, Protect Your Assets and Your Business! Jeff Harding, The Global Trust Group
	1:00 - 2:00 PM (ASK) FREE SESSION: Ask the Experts — Power Quality — Chair: John Dedad, EC&M						
	2:30 PM to 3:30 PM	107	Wiring — NEC® Chapter 8 Michael Feinsod E-Pacs, Inc.	207	Power Quality: The Impact of Dynamic Loads Scott Schindlbeck Elspec North America	307	Electrical Testing for the Contractor Paul Hartman Six Sigma Solutions
	4:00 PM to 5:00 PM	108	Grounding & Bonding L. Keith Lofland International Assoc. of Electrical Inspectors	208	ARC Flash: The Other Major Hazard David Kreger Electrical Reliability Services	308	Management of Catastrophic Incidents, Fires and Explosions of Electrical Systems R. Vasu Vasudevan, Sidhi Consultants, Inc.
Thursday 2/10/05	8:30 - 9:30 AM (GES) GENERAL SESSION: How to Increase Your Profits with Home Automation Jay McClelland, Home Automation, Inc.						
	10:00 AM to 11:00 AM	109	What's Wrong Here? Joe Tedesco Tedesco Electrical Code Consultants	209	Tips & Tricks of the Trade for the Electrical Trade Technicians Ted James Pasadena City College	309	LEDs in the Industrial Arena Eddie Effron Permlight Products
	11:15 AM to 12:15 PM	110	Electrical Code Violations Joe Tedesco Tedesco Electrical Code Consultants	210	A Pocket Reference on Harmonics and Power Quality Rod Olinger Electrical Reliability Services	310	Ground Testing: Principles & Practices Jeff Jowett Megger
	1:00 PM to 2:00 PM	111	Signal Reference Grids/ High Frequency Grounding Mark Harger Harger Lightning & Grounding	211	Submetering in California Dean Davidge Davidge Controls	311	Safety Requirements for Electrical Workers Vladimir Ostrovsky W.H. Salisbury & Company


# Exposition & Conference

**CISCO LEARNING**,  
a leader in Home  
Automation Training, presents  
4 Sessions (501-504) on  
Residential Computer Networking!

<b>PA4</b>	<b>Hands-on Electrical Troubleshooting</b> Dennis Walker Lewellyn Technology, Inc.	<b>PA5</b>	<b>Bid or Not — Win or Lost?</b> Steve Paulov Cabling Business Magazine	<b>NEC1</b>	<b>Understanding &amp; Applying the 2005 NEC®</b> Mike Holt Mike Holt Enterprises	
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"Monster House" and "BIG!"

**FREE!**

401	Microturbine CHP & CCHP Spinning Up Out West Steve Gillette Capstone Turbine	INTRODUCTION TO NETWORKING	501	An Introduction to Basic Networking Concepts and the OSI Model David Dusthimer, Cisco Learning Inst. Tom Moffses, N. FL Comm. College	NEC2	
402	How to Launch a Solar Powered Electrical Contracting Business Ron Warmack Warmack Electric		502	A Basic Introduction to TCP/IP David Dusthimer, Cisco Learning Inst. Tom Moffses, N. FL Comm. College		
403	Wind Generation for Small Applications Bruce Hammett Wind Energy Conversion Systems		503	Ethernet and Wired Solutions David Dusthimer, Cisco Learning Inst. Tom Moffses, N. FL Comm. College		
404	Optimizing Energy Conservation Using Submeters Ken Gill E-Mon, a Hunt Power Company		504	Wireless Solutions David Dusthimer, Cisco Learning Inst. Tom Moffses, N. FL Comm. College		
Grounding & Bonding — The 2005 NEC® Mike Holt Mike Holt Enterprises						

<b>405</b>	<b>Partnering with Electrical Contracting Firms</b> Richard Eidlin Altair Energy	<b>505</b>	<b>Communications Options for Submeters</b> David Bovankovich E-Mon, L.P., a Hunt Power Company
<b>406</b>	<b>Fuel Cells</b> Alan Katz MGE UPS Systems, Inc.	<b>506</b>	<b>Today's Energy Management Systems: What to Look For?</b> Mark Noyes WebGen Systems
<b>407</b>	<b>Home Automation Network Protocol</b> Joseph Dada Smarthome	<b>507</b>	<b>Increase Your Business with Today's Standards</b> Steve Paulov Cabling Business Magazine
<b>408</b>	<b>The Advanced Energy Tech Portfolio/Combining Renewable "Re-cycled" &amp; Efficiency into One Energy Portfolio</b> Stephen Heins, Orion Energy Systems	<b>508</b>	<b>The Wireless Arena</b> David Labuskes RTKL Associates

## Stay Up-to Date With the Electric West Conference Program!

- Learn about changes to the 2005 NEC!
- Learn about new opportunities in home automation and renewables!
- Learn about ways to improve your business!

Plus, courses in electrical maintenance, practical methods, lighting, power quality and other topics!

<b>409</b>	<b>Solar Power: Improve Your Bottom Line</b> Dean R. Marks Premier Power Renewable Energy
<b>410</b>	<b>UPB — A New Lighting Control Technology</b> Jay McClelland Home Automation, Inc.
<b>411</b>	<b>Gas Evolution and Ventilation Requirements for VRLA Batteries in Occupied Buildings</b> Alan Byrne, American Power Conversion



Conference Program  
Subject to change.  
Visit [www.electricshow.com](http://www.electricshow.com)  
for up-to-date information

### EXHIBIT HALL HOURS

Tuesday, February 8 . . . . . 10:00 A.M. - 5:00 P.M.  
Wednesday, February 9 . . . . . 12:00 P.M. - 7:00 P.M.  
Thursday, February 10 . . . . . 10:00 A.M. - 2:00 P.M.

# Professional Advancement Courses

**Monday, February 7, 2005**

**9:00 AM - 4:00 PM**

## **PA1 1 & 2 Family Dwelling Electrical Systems**

*L. Keith Lofland, International Association of Electrical Inspectors*

This is a comprehensive seminar that explains in clear, concise language with pictures and graphics, the installation, design and inspection of electrical systems in new and existing one and two-family dwellings. This workshop is particularly helpful and valuable for inspectors, contractors, electricians, and students. This program will assist attendees in making more accurate, thorough, and safer installations and inspections of one and two-family dwellings.

## **PA2 The California 2005 Title 24 Energy Code**

*James Benya, Benya Lighting Design*

California's Energy Code, Title 24, has received the biggest change in its history and becomes effective in 2005. In this seminar you will learn the details of the changes, including major revisions to the Tailored Method and Residential Lighting, new requirements for controls and acceptance documentation, and new Sections on Outdoor Lighting. As Principal Engineer for developing the Standards for the California Energy Commission, the presenter, James Benya, offers a chef's tour of the code in this comprehensive and informative session.

Attention will then be turned to Code Compliance Documentation, Hints and Strategies. In order to comply with California's Title 24 Energy Code, designers must create energy efficient lighting systems and document them correctly. A detailed tour of the new State forms and manual will be provided as well as tips and strategies for compliance.

## **PA3 Power Quality Technology to Improve Reliability**

*Mark McGranaghan, EPRI PEAC*

Reliability of commercial and industrial facility operations is dependent on the electricity supply reliability and quality. Problems with the quality of supply affect productivity and product quality. Premature failure of equipment, sensitivity to power system disturbances, inadequate transient voltage protection, grounding problems, and interference with computer systems and process controls all directly impact the bottom line.

Technologies are available to improve facility reliability. These technologies are not just UPS systems to protect the entire facility. The appropriate technology is dependent on the characteristics of the quality and reliability at the facility as well as the equipment characteristics. Selecting the best technology for your operation is both a technical and an economic challenge.

The technologies evaluated should also consider options on the supply system (premium power), especially if there are multiple customers that may have economic impacts associated with disturbances.

This presentation will discuss the full range of options that should be considered for improving the quality and reliability of the electric supply to critical processes. This is an optimization process that depends on the economics of solutions and the economics of impacts to the facility. A general procedure for this evaluation will be presented with appropriate examples.

*Note: CEUs may be offered for certain courses, but are not guaranteed. Please check licensing procedures in your state.*

## **PA4 Hands-on Electrical Troubleshooting**

*Dennis Walker, Lewellyn Technology, Inc.*

This intensive hands-on lab covers the troubleshooting and repair of control circuits and components. The novice as well as the experienced electrician will learn how to safely and efficiently build, troubleshoot, and repair motor control circuits using the hands-on troubleshooting methods covered.

During this program, you will build circuits on realistic training panels that contain a motor starter, relays, terminal strips, push buttons, selector switches, and limit switches. After the circuits are built, the instructor will introduce a realistic fault into the circuit. With the instructor's help, you will be asked to repair the faulty circuit by using your multimeter and the techniques learned earlier in the day.

Topics include building control circuits, troubleshooting and repairing circuits, procedures for troubleshooting, electrical safety, multimeter basics, component testing, and troubleshooting methods. Along with these topics, you will also learn to use your multimeter to measure voltage and resistance, test fuses, coils, contacts, contactors, and motor starters, and troubleshoot live circuits.

This program is 100% hands-on and is very practical in its approach to troubleshooting. The examples you will be shown are applicable to practices in any facility.

## **PA5 Bid or Not - Win or Lose?**

*Steve Paulov, Cabling Business Magazine*

When you have the opportunity to bid a project, this includes the electric work, which you know and low voltage systems, which you don't know, what do you do? Bid the electric, bid the low voltage or bid them both? If you only understood what these Low Voltage Systems are, the types of cables used, the hardware used, all the jargon used and what it takes to install the system, would you feel comfortable going after the entire job? Sure you would, because you would have what's called the EDGE. I can give you that EDGE. This entire day will be spent identifying the low voltage systems that are part of a bid or are one of your customer's request. We will discuss examples, such as stand alone or part of an electrical bid or existing systems in an office that requires voice and ethernet, risers of copper and fiber, cabling between buildings, a pharmacy that requires a telephone system, point of sales systems, CCTV, fire and security systems, a hardware store and required systems, medical facility systems and an entire office complex requiring several types of systems. Bid or Not, Win or Lose, I can't guarantee you will get the job, but at least you will have an understanding of what's out there and what's needed to finish a job.

## **NEC1 Understanding & Applying the 2005 NEC®**

*Mike Holt, Mike Holt Enterprises*



An in-depth examination of some of the most important rules contained in the 2005 NEC®. This program will help you to understand the concepts necessary to design, install, inspect, measure and troubleshoot electrical systems. In addition, this seminar is intended to help clear up confusing and seemingly conflicting or controversial NEC® rules. Also tips on proper electrical installations, advice or cautions to possible conflicts or confusing Code rules and warnings of dangers related to improper electrical installations will be provided. This dynamic and exciting seminar with Mike will translate the very technical language of the NEC® into everyday language that you will be able to apply.

*Note: NEC1 requires separate registration.*

**Tuesday, February 8, 2005**

**9:00 AM - 10:00 AM**

## KEYNOTE ADDRESS



### **Reinventing with the Reverend: A Tradesman with a Twist**

Reverend Gadget, Reverend Gadget Inc. and Discovery Channel's "Monster House" and BIG!  
See page 3 for Session Description.

**FREE**  
to ALL  
Attendees!

**11:00 AM - 12:00 Noon**

### **101 Lighting for Hospitality and Residential Projects Under the 2005 California Title 24 Energy Code**

James Benya, Benya Lighting Design

With a complete overhaul of the requirements for lighting of dwelling units and the addition of outdoor lighting to the code, the Title 24 2005 code will dramatically change the way we design and build hotels, motels, apartment buildings, condos and detached homes. In this very informative class by the principal developer of the code, you will get the details on the new requirements including tips and formal interpretations.

### **201 Dealing with Harmonic Distortion Problems**

Mark McGranaghan, EPRI PEAC

Harmonic distortion levels are becoming an increasing concern for both facility managers and electric utilities. IEEE 519.1 - Guide for Applying Harmonic Limits on Power Systems - has recently been completed and provides very useful examples and recommendations for dealing with a wide variety of harmonic problems. This seminar will provide an overview of some of the important recommendations from the new IEEE Guide, including: measuring harmonics in a consistent manner; designing for typical levels of harmonic voltage distortion that you can expect from the supply system; designing to meet the requirements of IEEE 519-1992 for harmonic control at the facility level; solving harmonic problems caused by increasing numbers of electronic loads that cause third harmonic currents to flow in the neutral and result in increased third harmonic voltage distortion levels; safely applying power factor correction without magnifying harmonic problems; when active filters might be a good alternative to passive filters for controlling harmonic levels.

### **301 Skill Sets for the Electrical Estimator**

Mike Hughes, Bergelectric ; Jeff Margolis, Dynalectric Los Angeles ; Dan Melroy, Neal Electric

This session will examine tools and techniques employed by the estimator as well as the evolving role of today's estimator. Finally, we will examine the role of the Chief Estimator in reviewing estimates.

### **401 Microturbine CHP & CCHP Spinning Up Out West**

Steve Gillette, Capstone Turbine

Clean, reliable and efficient microturbine power generators were all the rage up until the California Power Crisis bubble burst in 2001. Although deployments of this small-scale energy technology diminished in the years that followed, more than 500 are currently spinning gas into gold in the Western US (and about 2,500 more worldwide). This session will present some of the many success stories, and near-future direction, of microturbine-based CHP (combined heat and power) and CCHP (combined cooling, heating and power) benefits for small to mid-sized businesses and public facilities. Topics will include everything from the economic and environmental benefits to hurdles that have been overcome in application, permitting and utility grid interconnection.

### **501 An Introduction to Basic Networking Concepts and the OSI Model**

David Dusthimer, Cisco Learning Institute;  
Tom Moffses, North Florida Community College

Data moves through all networks in basically the same way and according to a very well defined model. In this course the very basics of networking will be introduced using the conceptual OSI model as an illustration. This course will discuss how data is created and transmitted from one computer, through a local area network, to the Internet and then to its destination on another network. Principles like encapsulation will be discussed in full.

**11:00 AM - 5:00 PM**

**Full Day Session**

### **NEC2 Grounding & Bonding: The 2005 NEC®**

Mike Holt, Mike Holt Enterprises



Grounding and bonding of electrical systems, sensitive electronic and communications equipment is the most important and least understood activity in the electrical, data processing and communications industry. Explanation of the main points will be presented in an informal and relaxing style using PowerPoint 4-color graphics and examples that apply to today's electrical installations. Those attending this high energy program will learn the electrical fundamentals necessary to understand the grounding and bonding rules contained in the 2005 National Electrical Code for systems that operate at 120/240, 208Y/1120, or 480Y/277.

Note: NEC2 requires separate registration.

**1:00 PM - 2:00 PM**

### **102 2005 NEC® Code Basics - Part I**

Richard Loyd, R&N Associates

This session will cover a brief history of the National Electric Code (NEC®) when, why and how was developed, and how to understand and use the NEC® more efficiently and quickly. You will learn how the NEC is developed as a consensus document and how other documents impact the NEC. Also, you will learn how to use and understand the National Electrical Code more efficiently and accurately. The economies of efficiently looking at all aspects before specifying or selecting specific equipment and wiring methods. Changes to the 2005 NEC® will be addressed as each issue is covered.

### **202 The Critical Need for Reliable Electrical Grounding Systems**

Steven Baretta, Accurate Technical Services

As our reliance on sophisticated electrical and electronic equipment continues to grow, there is an increasing awareness of the critical nature that grounding systems can have on such systems. In many cases, the root cause of erratic or improper equipment operation (including programmable logic controllers, variable speed drives, soft drives, etc.) is the electrical ground that the equipment is connected to. Possible causes of improperly grounded systems and in many cases variability in the electrical ground will be reviewed. The affects on electrical and electronic systems will be discussed.

Simple, complex, new and innovative solutions for establishing and monitoring a proper electrical ground will be discussed in efforts to improve the reliability of electrical and electronic systems.

**Be sure to check out the  
Power Quality Pavilion at the Show!  
See Page 15 for details.**



# The Conference Program

**Tuesday, February 8, 2005**

**continued**

**1:00 PM - 2:00 PM**

## **302 Managing Your Material Pricing**

*Brian Hoffelder, Vision Training Services*

This seminar will present fundamental methods and procedures for the most effective ways to manage material pricing for any size electrical contractor. It will cover how to use electronic pricing systems, as well as direct pricing from suppliers. It will also cover how to manage pricing for service jobs, contract work, inventory, and purchasing. A systematic approach to pricing saves time and money, but setting this up can be difficult in light of the hundreds of thousands of items which are available and the volatile nature of material prices which has been seen during the last year.

## **402 How to Launch a Solar Powered Electrical Contracting Business**

*Ron Warmack, Warmack Electric*

Visit our website for this course description —  
[www.electricshow.com](http://www.electricshow.com).

## **502 A Basic Introduction to TCP/IP**

*David Dusthimer, Cisco Learning Institute*  
*Tom Moffses, North Florida Community College*

Data moves along network according to well defined sets of rules or protocols. Currently the most popular such protocol is TCP/IP. Abbreviation of Transmission Control Protocol, and pronounced as separate letters. TCP is one of the main protocols in TCP/IP networks. Whereas the IP protocol deals only with packets, TCP enables two hosts to establish a connection and exchange streams of data. TCP guarantees delivery of data and also guarantees that packets will be delivered in the same order in which they were sent. This course will explore the basics of TCP/IP and provide an insight into how packets move along the Network.

**2:30 PM - 3:30 PM**

## **103 2005 NEC® Code Basics - Part II**

*Richard Loyd, R&N Associates*

In this session you will learn design considerations and the compatibility for use on circuits of below and above 600 volts. We will cover each equipment and wiring method's suitability in industrial (including Hazardous Locations), commercial, and residential applications. The fundamental safety issues that must be considered on all installations prior to specifying one over another will be covered. This course will address issues such as approved vs listed equipment, voltage and temperature limitations, locations where subject to physical damage. We will cover circuits run in parallel, underground installations, protection against corrosion, above suspended ceilings and support and securing of all types of wiring methods. The installation and uses of electric wiring and equipment in ducts, plenums, and other air-handling spaces will be addressed. Changes to the 2005 NEC® will be addressed as each issue is covered.

**Be sure to check out the  
Home Automation Pavilion at the Show!  
See Page 15 for details.**

## **203 Lightning Protection From Top to Bottom**

*Paul Resler, National Lightning Protection Company*



In the lightning protection industry, there are four types of systems. This session will cover three of them, as to how they are installed, and how they are expected to function. While discussing the how & why, codes and standards will also be discussed. Grounding must be covered because without the proper grounding, lightning protection will NOT protect. For a complete lightning protection system it must include TVSS. Those attending this session will leave with the understanding that there is more than one way to protect against lightning damage and that lightning protection should be designed by those involved in lightning protection.

## **303 Web-Based Collaboration — What's It All About?**

*Jeff Burmeister, Constructware*

A recent CMAA/FMI survey of construction owners shows that 25% are using web-based project management/collaboration software to tie their project teams together. More than half of contractor/construction managers are using these tools as well, according to a recent CFMA IT survey. What does this mean for electrical contractors? Like it or not, electrical contractors need to understand and prepare for new business processes brought on by these project collaboration tools. In fact these centralized applications can be a good thing, reducing miscommunication and facilitating more orderly business practices (including faster pay for subs) across owners' and contractors' supply chains. Some electrical firms are using these tools themselves to improve their own business operations and productivity. This session looks at the evolution of these tools, including lessons learned from fellow electrical firms, and provides guidance for specialty contractors who want to learn more.

## **403 Wind Generation for Small Applications**

*Bruce Hammett, Wind Energy Conversion Systems*

With oil prices at never to be reduced levels, alternative forms of energy will grow at increasingly faster paces across the nation. Wind energy conversion systems have become the new oil boom in some regions of the nation for electrical utilities, their developers, contractors and users at all levels. This session will define the history, the present, and the future opportunities for the electrical contractor community in this quickly expanding industry. It will bring to view how the growth of energy needs in California and throughout the USA has created opportunities for installation and service contractors in all aspects from residential to utility multi-megawatt generator sizes, 120V connections to 500kV substations, residential wiring to utility transmission systems.

## **503 Ethernet and Wired Solutions**

*David Dusthimer, Cisco Learning Institute*  
*Tom Moffses, North Florida Community College*

This class will explore the basics of Ethernet technology and discuss the different data rates and applications. Ethernet is one of the most widely implemented Local Area Network Standards. It uses a bus or star topology and supports data transfer rates of 10 Mbps. The Ethernet specification served as the basis for the IEEE 802.3 standard, which specifies the physical and lower software layers.

A newer version of Ethernet, called 100Base-T or Fast Ethernet, supports data transfer rates of 100 Mbps. And the newest version, Gigabit Ethernet supports data rates of 1 gigabit (1,000 megabits) per second.



**Tuesday, February 8, 2005**

continued

**4:00 PM - 5:00 PM****104 Stationary Batteries: Codes, Standards, Conflicts and Confusion***Steve McCluer, American Power Conversion*

Codes (laws) are trying to keep pace with changes in battery technology. Safety factors are being re-evaluated. New markets create the need for new standards. Codes sometimes conflict with each other. Even the inspectors don't always understand what the code is trying to say. This presentation will give an overview of today's Codes and Standards for stationary battery systems. It will identify the main documents and will highlight some of the most important requirements. It should be attended by anybody who owns, specifies, installs or maintains stationary battery systems.

**204 Harmonics and Power Quality: Causes, Symptoms, and Solutions***John DeDad, EC&M*

With the ever increasing population of personal computers in office environments and variable speed drives in industrial environments, the problems resulting from the generation of harmonic currents and voltages has increased significantly. The result is an increased awareness of these problems but a lack of understanding of the how, where, and why. By attending this presentation, you will learn how harmonic currents are generated, what specific devices or equipment components are involved, characteristic symptoms, and methods to cope with or eliminate harmonics. Included will be discussions on phase-to-neutral and phase-to-phase nonlinear loads, k-rated transformers, filters, branch-circuit wiring, and test and measurement analysis.

**304****Sales and Marketing Essentials for Electrical Contractors***Brian Hoffelder, Vision Training Services*

This seminar will change the way you do business! From the smallest to the largest electrical contractor, no other part of the business is more important than marketing and sales. This seminar will be taught by a person who has seen the successes and failures of thousands electrical contractors from first hand experience in providing consulting to electrical contractors, as well as working in the electrical contracting business and as a principal in the companies he has participated in from the initial startup. You will learn how to develop a marketing & sales plan, how to hire and compensate sales people, and how today's technologies with contact management software and websites can enhance your efforts. You will make all of your decisions from a different and more profitable perspective when you see how dramatically these concepts will affect your business.

**404 Optimizing Energy Conservation Using Submeters***Ken Gill, E-Mon, a Hunt Power Company*

This presentation will discuss how submeters can be used as the first and final steps in an energy management and conservation programs. First, submeters can identify inefficiencies so that energy conservation tactics can target those areas to maximize energy conservation dollars. For example, with submeters, a facility may find it spends a significant amount on lighting, and concentrate on implementing a more efficient lighting system. Submeters can also be used as the final step for measurement and verification, to see where (and if) energy savings occurred after implementing a conservation program.

**504 Wireless Solutions***David Dusthimer, Cisco Learning Institute**Tom Moffses, North Florida Community College*

Wireless networks provide an excellent solution for remodels and for any application where running wires is too expensive and difficult. This course will discuss the new wireless standards and the preferred application for each standard. Limitations and security issues will also be discussed.

**Wednesday, February 9, 2005****9:00 AM - 10:00 AM****105 Origin and Development of NFPA 900 — Building Energy Code***Allan B. Fraser, NFPA*

In late 2002, the NFPA Standards Council charged the Building Systems Technical Committee with developing a new document, NFPA 900 Building Energy Code, to complete the C3 Code set. NFPA 900 incorporates the technical provisions of ASHRAE 90.1 and ASHRAE 90.2 with administrative provisions and appropriate annexes, tables of contents, definitions, references, indices and other information developed through the NFPA process to create a "stand-alone" building energy code.

Learn how NFPA, ASHRAE and other ANSI Standards Developing Organizations connect their documents to create a coordinated set of codes and discover some of the ins and outs of NFPA 900 — Building Energy Code.

**205 Energy Efficient Motors and Transformers***David Brender, Copper Development Association, Inc.*

This course will examine two of the most common energy-using devices used in all types of facilities, motors and transformers. Both types of devices are available in varying efficiency ratings, and the end-user should be aware of the great money and environmental saving that may accrue from choosing the proper device. Paybacks as low as a few months are possible, and less than 3 years is common.

We will take a look at how these more efficient motors and transformers are made, and how they differ from their standard counterparts. We will also examine several case histories, the energy and dollar savings these users are experiencing, and their purchase and repair policies, all of which will have relevance to any end-user, be they commercial, industrial, institutional, etc.

**305 DALI: A Look at the Newest Advance in Lighting Control Technology***Charles Knuffke, The Watt Stopper, Inc.*

The DALI protocol (Digital Addressable Lighting Interface) may be the hottest new topic in lighting controls in years. It's being talked about for applications from small conference rooms to entire buildings, but what real opportunities does it offer? How will it impact lighting control professionals' decision making and designs in the future? And how easy is it for the building owner to use?

DALI is a non-proprietary, open communication protocol enabling lighting control devices to communicate directly with individual high-end dimming ballasts. The resulting potential for control flexibility is unprecedented, since control is based on the programs in the ballasts and not how the ballasts are wired together. Lighting controls can be now being easily re-programmed to meet changing workplace needs. But in order to finish a project successfully, the engineers and contractors need to understanding the technology behind DALI before beginning the design and/or installation of a DALI system.

# The Conference Program

**Wednesday, February 9, 2005**

**continued**

**9:00 AM - 10:00 AM**

## **405 Partnering with Electrical Contracting Firms**

*Richard Eidlin, Altair Energy*

With the demand for renewable energy growing by more than 25% a year, now is the time for electrical contractors to consider becoming part of this dynamic industry. One of the fastest growing sectors of this industry is solar electric photovoltaic (PV) technologies. Use of PV's date back forty years, but have really become mainstream in the past seven. PV systems are increasingly being used by homeowners, developers, private firms and schools to offset a portion of their traditional electric bill. At the same time, the use of PV in off-grid or remote power applications is growing dramatically. The surge in PV systems is being bolstered by state rebate programs, tax credits, simplification of utility interconnection rules and growing public clamor for clean, non-polluting energy. Added to these factors are increasing efficiencies in PV cell output and the involvement of companies such as Sharp, Sanyo, General Electric and BP

## **505 Communications Options for Submeters**

*David Bovankovich, E-Mon, L.P., a Hunt Power Group*

This presentation gives a general overview of the various communications options for reporting meter data, from "sneaker reads" (walking up to the meter) to satellite. It also addresses hard-wired reporting options, Ethernet, Modbus, and others as well as the use of wireless transmitters for remote communication. It will educate electrical contractors about the options they can sell (many of whom already have voice and data divisions within their companies), and about which communication option is best for a given set of circumstances.

**10:30 AM - 11:30 AM**

## **106 Measuring Ground Fault Current**

*Paul Hartman, Six Sigma Solutions*

In the real world current flows through various paths, some intentional some unintentional. A properly installed electrical system will have current flowing through designated conductors such as Phase and Neutral, Positive and Negative. These conductors are monitored occasionally or continuously to determine the amount of amps flowing in an electrical system. Then there is the ground conductor, which is usually attached directly to the normal current carrying conductors and attached to everything else metal in a facility. Capturing the magnitude and determining the paths of ground currents can be tricky business. This presentation will address the various ways that ground fault currents are monitored with either permanently installed equipment or temporary hand held type test equipment. Techniques to verify that a system's ground currents will flow in a predetermined path are also discussed.

## **206 Tackling Power Quality Problems**

*David Mueller, Electrotek Concepts, Inc.*

This presentation will cover the most common types of power quality problems. It will include the best solution techniques for solving these problems. Wiring and grounding problems, harmonics, transients, and voltage sags will be included. The presentation will be primarily based on case history examples of real world problems.



## **306 Are You Prepared to Lose Everything? If Not, Protect Your Assets and Your Business!**

*Jeff Harding, The Global Trust Group*

The small/medium business owner works hard to come to the market, develop the business, break through so many obstacles to be successful. They created an excellent return on their investment and have many other investments as a result of their financial success.

The problem with this scenario? Most financial advisors talk about getting a better return on investment, buy some more insurance, etc. No one creates a firm foundation for the business owner to build upon. Suddenly, due to a lawsuit from the business side, a lawsuit on the personal side, a lawsuit from an employee...it could come from any angle...all the assets, the infrastructure, everything that the small/medium sized business owner worked so hard to create, is gone!

We will discuss the various forms of entities in running a business, how best to protect your personal and business assets from both business and personal risk, how to pass on the business and all the assets to your heirs without probate or estate taxes. We will also talk about some strategies to lower income taxes, self-employment taxes and how to create your own bank to fund future purchases for your business.

## **406 Fuel Cells** *Alan Katz, MGE UPS Systems, Inc.*

Visit our website for this course description —  
[www.electricshow.com](http://www.electricshow.com).

## **506 Today's Energy Management Systems: What to Look For?**

*Mark Noyes, WebGen Systems*

In a time of energy crisis, more and more organizations seek ways to reduce energy consumption to lower costs and lessen the impact on the environment.

Building management systems can now be brought to a level where organizations meet energy conservation objectives with an enterprise energy management system. Such systems automatically reduce energy costs, improve energy efficiency and curtail energy consumption on demand - and can easily pay for themselves.

Automated systems reliably deliver permanent load reduction, peak load avoidance and curtailment services to assist building managers and organizational leaders in making sound and effective energy usage decisions in conjunction with their local utility companies. The top energy management systems learn energy consumption patterns throughout the enterprise and execute smart conservation strategies aimed at reducing energy costs in real-time, linking disparate buildings into an efficient energy management network.

This session will provide an overview of effective energy management systems and what to look for when choosing the right system for an organization's individual needs.



**Wednesday, February 9, 2005**

continued

**1:00 PM - 2:00 PM****ASK Ask The Experts Panel —  
POWER QUALITY**Chair: John DeDad, EC&M  
See page 3 for Session Description**2:30 PM - 3:30 PM****107 Wiring — NEC® Chapter 8**

Michael Feinsod, E-Pacs, Inc.

The articles of this chapter address cables, materials and installations methods utilized in today's high tech audio, video and informational communications systems. This presentation is supplemented with photographic illustrations of actual field conditions. Emphasis will be placed on installation methods for compliance with NEC® code articles. Specifically; cabling, grounding, mechanical and lighting protection. A brief discussion of the systems engineering principals (eg: Conductivity, Skin Effect, Intermediation Interference (IM), Transmitter Noise & Receiver Desensitization (TNRD)) and theory is offered as explanation for the code practices. A printed handout of containing referenced industry related documents and available resources to assist the professional installer will be distributed.

**207 Power Quality:  
The Impact of Dynamic Loads**

Scott Schindlbeck, Elspec North America

This seminar will provide participants with a foundation of power quality principles that can help them identify some of the traditional causes of poor power quality in their facilities. Further, the participant will gain general knowledge on measurement techniques and equipment used to analyze their power system on both a temporary and/or permanent basis. Lastly, the session will investigate some of the solutions available in today's marketplace that solve various power quality concerns and provide before and after results of specific application examples.

**307 Electrical Testing for the  
Contractor** Paul Hartman, Six Sigma Solutions

Every day electrical contractors are called upon to investigate faulty electrical circuits. In most cases if there isn't a smoking hole in the components the task will involve some form of troubleshooting. Most troubleshooting involves simple tests such as insulation resistance, conductor resistance, contact resistance (millivolt drop), phase sequence, phase rotation, and inphase voltages. To simplify these tests this presentation is divided into to parts. First is identifying how an electrician in the field can apply these troubleshooting techniques in addition to determining the proper test equipment to use, second and equally important is how the same person can interpret the investigative data once the values are determined.

**407 Home Automation Network Protocol**

Joseph Dada, Smarthome, Inc.

In the past decade, industry alliances and large companies have spent millions of dollars conducting research and development to create a home automation networking technology superior to X10, the 30-year old home automation standard that works through the home's existing wiring, or powerline. With all its flaws, X10 has remained the de facto standard for its low cost and relative simplicity. However, X10 is often unreliable. Any technology that supplants X10 will need to be: reliable, affordable and simple to install and use. Another key factor to home automation's future success is the technology needs to be a combination powerline and radio frequency (RF) to enable a comprehensive "mesh" network for the home or small commercial site. When that technology comes to fruition, it will revolutionize mainstream acceptance of automated functions in the home and enable a new and profitable category for the home improvement and electrical engineering markets. Dada will discuss the strengths and weaknesses to each of the three home automation technologies – structured wiring, powerline and radio frequency – and discuss the technologies that offer hope for the future of home automation.

**507 Increase Your Business with  
Today's Standards**

Steve Paulov, Cabling Business Magazine

Use the standards to present your customers with a Structured Cabling System, using both copper and fiber, providing for voice — telecommunications (PBX) and data - Local Area Network (Ethernet). How many and what types of cables, what category, the cable between floors, how many pairs, size of cable, copper or fiber, cabling from hubs and routers, from the PBX and from the computer. Use these standards to get customers and let your existing customers know that you are good and know your business.

**4:00 PM - 5:00 PM****108 Grounding & Bonding**L. Keith Lofland, International Association  
of Electrical Inspectors

This seminar is a must for those who wish to keep informed and increase their expertise in the grounding and bonding of electrical systems.

Completely revised to the current edition of the NEC®, it is based on the authoritative text Soares Book on Grounding and clearly explains the fundamentals and practice of grounding in easily understood language. Dozens of new and revised color illustrations and photos of actual installations clarify and simplify the fundamental principles of grounding and bonding.

**208 ARC Flash: The Other Major Hazard**

David Kreger, Electrical Reliability Services

Electrical hazards – specifically shock, arc flash, and arc blast – can result in serious injury or death to electrical workers. Ensuring worker safety and meeting the challenges of the new arc flash safety requirements can be a difficult task to accomplish in-house without the assistance of resources familiar with industry standards and recommended practices. This seminar is designed to explain the major aspects of arc flash protection and provide resources for establishing an effective arc flash protection program.

**Be sure to check out the  
Renewable Energy Pavilion at the Show!  
See Page 15 for details.**

# The Conference Program

**Wednesday, February 9, 2005**

*continued*

**4:00 PM - 5:00 PM**

## **308 Management of Catastrophic Incidents, Fires and Explosions of Electrical Systems**

*R. Vasu Vasudevan, Sidhi Consultants, Inc.*

Catastrophic failures and accidents cause widespread and significant damage; viz., operation, power and communication interruptions, property damage, and personal injury, and time-delays. If the failure and incident is not properly managed and prevented, the catastrophe would have far reaching effects such as mitigation of damage, improper hazard control and liability. These incidents should be analyzed and investigated to determine the root cause of the failure so that corrective and maintenance measures can be implemented to minimize the future catastrophes.

Catastrophic incidents, such as fires, explosions, electrical arc-flash, electrocution, and machine failures, require NOT only mitigation and restoration of service, but detailed investigation, diagnostics, failure analysis and evaluation is a must. This implies that incidents should be managed with this as an added objective. The analysis and investigations depend upon the type of incident (e.g., fire, explosion, electrocution). This presentation describes the generic procedures for the investigation of accidents, applicable industry standards and procedures, and illustrates the procedures using example case studies of industrial electrical accidents.

## **408 The Advanced Energy Technology Portfolio/Combining Renewable, "Re-cycled" and Efficiency into One Energy Portfolio**

*Stephen Heins, Orion Energy Systems*

Energy Efficiency is finally being recognized as an important component to America's energy future. In particular, states like Pennsylvania have begun discussion about including Energy Efficiency into what many states call renewable portfolios and Renewable Portfolio Standards (RPS). The whole idea being that combining Energy Efficiency and renewables will allow the practicality of Energy Efficiency to enhance the economic viability of a program, which still depends on tax breaks and state subsidy.

## **508 The Wireless Arena**

*David Labuskes, RTKL Associates*

This presentation will be an overview of wireless technologies and their impact on the design of a physical communications network. The topics covered will include:

- A brief history of wireless as a context for today's technologies.
- A brief overview of the regulatory and standards bodies and their role in the technology.
- A discussion of the various types of wireless technology (including 802.11x, cellular, microwave, free optics, etc.)
- A discussion of the steps required when designing a wireless network — including calculation of coverage, link analysis, antenna selections and other considerations.
- A discussion about distributed antenna systems and the role they can play in addressing the needs of your clients.
- Some of the pit falls and obstacles to wireless technology that should be watched out for.
- An examination of the future and an answer to the question: "Will wireless replace wired?"

**Thursday, February 10, 2005**

**8:30 AM - 9:30 AM**

## **GENERAL SESSION**

### **"How to Increase Your Profits with Home Automation"**

*Jay McClellan, President – Home Automation, Inc.*  
See page 3 for Session Description

**FREE  
to ALL  
Attendees!**

**10:00 AM - 11:00 AM**

## **109 What's Wrong Here?**

*Joe Tedesco, Tedesco Electrical Code Consultants*

This presentation will include some of the most common and serious electrical code fire and shock violations and hazards found throughout the USA. The pictures will show the hazards and will provide the code reference for over 50 different situations to be considered by anyone who is involved in the inspection or electrical safety process in the areas surrounding residential, commercial, and industrial buildings premises wiring. Video clips will also show situations that will be hard to believe!

## **209 Tips and Tricks of the Trade for Electrical Trade Technicians**

*Prof. Ted James, Pasadena City College*

This presentation is designed to assist you in performing electrical maintenance for today's electrical systems.

The theory and technology of electrical maintenance for electrical systems and service is a rapidly accelerating industry and in high demand. Maintaining electrical systems in today's competitive global market is imperative for any business. Cutting-edge training and knowledge of electrical systems is a must for electrical maintenance personnel and team members in order to prevent critical down time. Today's complex information systems, power quality requirements, rotating machinery, static devices and lighting control systems require maintenance teams to respond and make repairs with a minimum amount of down time. An organized schedule and preventative maintenance program will shorten the systems down time. This session will provide leading edge know how that will insure excellence and success on the first call.

## **309 LEDs in the Industrial Arena**

*Eddie Effron, Permlight Products*

This seminar will review basic concepts in the operation of LEDs and what all potential users of LED products need to be mindful of. The application of LEDs for not only machine vision but also their potential for other industrial applications will be discussed. These discussions will review the issues of safety, environmental, energy, maintenance and, of course, lighting.

## **409 Solar Power: Improve Your Bottom Line**

*Dean Marks, Premier Power Renewable Energy*

This forum is on how an investment in photovoltaics can improve the overall bottom line of your business. Mr. Marks will utilize his expertise in solar power to cover detailed topics of solar system design, installation, and maintenance. Solar design includes applications of building integrated PV tiles, glass building facades, and remote generating systems. This presentation will uncover the various benefits of solar power and how they can improve the overall image, productivity, and financial situation of west coast businesses and corporations. Included in these benefits are the rebates and tax credits currently offered by the state of California which can pay up to 50% of the total cost. Overall, this seminar intends to formally educate you on the benefits and technological advancements of solar power.



**Thursday, February 10, 2005****continued****11:15 AM - 12:15 PM****110 Electrical Code Violations***Joe Tedesco, Tedesco Electrical Code Consultants*

See Joe's unusual collection of "electrical street crimes" and hazardous conditions that can be found in and around most buildings and on almost every street corner in some of the major cities around the country. The exposed live wires, broken fittings, damaged conduits, missing covers, and many more very visible and serious conditions, are allowed to remain without any maintenance or concern and are waiting to attack their victims.

**210 A Pocket Reference on Harmonics and Power Quality***Rod Olinger, Electrical Reliability Services*

This course on harmonics and power quality will give the attendee a good overview of the types of distortion, the sources of distortion, and the effects of distortion. The types of distortion that will be discussed include: over voltage, under voltage, harmonic, noise/interference, swell, sag, surge, and impulse. After having established what harmonic distortion is and the effects we will look at various mitigation techniques. Mitigation techniques that will be discussed include: increased neutral size, dedicated neutrals, dedicated equipment grounds and grounding systems, harmonic filters, tune filters for resonance, RMS type monitors, and K-Rated transformers.

**310 Ground Testing: Principles & Practices** *Jeff Jowett, Megger*

This presentation will familiarize the attendee with fundamentals of ground electrode testing, how it differs from all other types of electrical tests, the basic theory behind correct test procedure, and common errors in test application and performance. It will include basis in standards agencies, with update of IEEE revision. A description of ground tester, and how it is specifically designed to meet unique requirements of a ground test, and why generic ohmmeters are ineffective, will be explored. Included will be descriptions of various standard test methods; general methods for standard applications, specialized methods for difficult applications, and simplified methods for expedited situations. Ineffective procedures will be discussed, and why and how they should be avoided. Learn the basis for acceptance standards including National Electric Code, and how to improve unacceptable grounds. Understand the correct application and avoidance of misapplications of a clamp-on tester. Discover methods for enhancing productivity and improving capabilities to meet difficult situations. Learn about methods for testing and measuring soil resistivity (electrical characteristics of soil), and how resulting data is used in ground electrode design and installation, and soil prospecting. A discussion of soil composition and characteristics, and how it effects electrical performance will conclude this session.

**410 UPB - A New Lighting Control Technology** *Jay McClellan, Home Automation, Inc.*

For the professional installation community, home lighting systems represent a new and growing opportunity for profitable installation jobs. Attend this presentation to find out about UPB — a new digital communication format that has been in use in commercial environments since 1999 and is now appearing in residential switches. Like X-10, the signal is sent over the existing AC wiring. Unlike X-10, the signal is sent digitally, using a pulse-position-modulation scheme that is extremely robust. The UPB digital format is inherently two-way, and the range is sufficient for all residential and most small commercial installations without repeaters. In testing, UPB has shown to be more than 100 times more reliable than X-10.

**1:00 PM - 2:00 PM****111 Signal Reference Grids / High Frequency Grounding***Mark Hargar, Hargar Lightning & Grounding*

The purpose of this presentation is to define the components of a high frequency ground system and where these systems are used. We will also identify and describe the components used in detail as well as provide a better understanding of the need for high frequency grounds to reduce or eliminate high frequency transients by achieving a common ground reference for all equipment within a contiguous area. A summary of installation practices will also be discussed. The session will:

- Define the purpose of high frequency ground systems and define the subsystems that comprise a high frequency ground system.
- Provide a better understanding for the need for high frequency grounds and cover the applicable standards for high frequency ground systems.
- Compare the different types of signal reference grids used commercially and the features and benefits of these signal reference grids.

**211 Submetering in California***Dean Davidge, Davidge Controls*

California has the most complicated regulations for revenue submetering in the country. This session will provide an overview of the new state submetering regulations adopted by the Dept of Agriculture, Division of Measurement Standards in the past year, the requirements for testing by the county Weights & Measures office, and the tariffs published by the various utility companies. These tariffs specify whether or not a utility company customer is allowed to resell electricity and the prices that can be charged. A handout will explain how to research the current regulations for different parts of the state. There will also be a discussion of different types of California approved meters, automatic meter reading systems, billing software and billing services.

**311 Safety Requirements for Electrical Workers***Vladimir Ostrovsky, W.H. Salisbury & Company*

This session will provide an introductory knowledge of the NFPA 70E requirements and basic definitions and terms from NFPA 70E standard. It will cover all hazards associated with working on or near energized conductors and parts, with discussions on components of the electrical flash. We will cover responsibilities of the employer and employee, and OSHA, NEC and NFPA requirements for personal protective equipment. Protection boundaries, and basics of hazard assessment requirements will be discussed.

**411 Gas Evolution and Ventilation Requirements for VRLA Batteries in Occupied Buildings***Alan Byrne, American Power Conversion*

The widespread deployment of Valve-Regulated Lead-Acid (VRLA) batteries in commercial buildings outside the confines of dedicated battery rooms and other controlled environments has given rise to concern from fire marshals, building inspectors, building owners, and users with respect to hydrogen gas evolution. The same rules that cover the installation and operation of Vented Lead-Acid (VLA) battery systems, sometimes called "flooded" or "wet cells," cannot be applied and there is a need to examine the differing chemistries, make-up and operation between VLA and VRLA. This paper will examine what causes VRLA batteries to gas, and what can be done to limit gassing. The design, installation and operation of VRLA battery systems will be addressed and how the requirement for "dedicated forced-air ventilation" can be avoided.

## Step 1: GENERAL INFORMATION

**TAKE 10% OFF**— When you register a team of 3 or more from the same company at the same time.

Register by Monday, January 7, 2005 to receive your Show Credentials in the mail. Registrations received after January 7th, Show Credentials will be prepared on-site.

FIRST NAME \_\_\_\_\_ LAST NAME \_\_\_\_\_

TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_ COUNTRY (OUTSIDE U.S.) \_\_\_\_\_

TELEPHONE \_\_\_\_\_

FAX \_\_\_\_\_

E-MAIL \_\_\_\_\_

By providing your e-mail address, you are granting PRIMEDIA Business Magazines & Media permission to contact you via e-mail.

☐ Please contact me about special needs

Source Code \_\_\_\_\_

## Step 2: YOUR PROFILE

### 1. Your Title or Job Function (Check ONE only)

- |   |  |   |
|---|--|---|
| A. <input type="checkbox"/> Electrical Engineer   | I. <input type="checkbox"/> Plant Engineer/Other Plant Personnel | P. <input type="checkbox"/> Cable Installer     |
| B. <input type="checkbox"/> Chief Electrician     | J. <input type="checkbox"/> President, Owner, Partner            | Q. <input type="checkbox"/> Network Installer   |
| C. <input type="checkbox"/> Electrician           | K. <input type="checkbox"/> Company Officer                      | R. <input type="checkbox"/> Sales/Marketing     |
| D. <input type="checkbox"/> Electrical Contractor | L. <input type="checkbox"/> Design Engineer                      | S. <input type="checkbox"/> Manufacturer's Rep. |
| E. <input type="checkbox"/> Estimator             | M. <input type="checkbox"/> Sales Engineer                       | T. <input type="checkbox"/> Purchasing          |
| F. <input type="checkbox"/> Project Director      | N. <input type="checkbox"/> Electrical Supervisor                | U. <input type="checkbox"/> Other _____         |
| G. <input type="checkbox"/> Facilities Manager    | O. <input type="checkbox"/> Maintenance Engineer                 |   |
| H. <input type="checkbox"/> Electrical Inspector  |  |   |

### 2. Your Industry Group (Check ONE only)

- |   |  |  |
|---|--|--|
| A. <input type="checkbox"/> Contracting                               | F. <input type="checkbox"/> Transportation   | L. <input type="checkbox"/> Manufacturer's Agent |
| B. <input type="checkbox"/> Electric Utility                          | G. <input type="checkbox"/> Manufacturing    | M. <input type="checkbox"/> Wholesaling          |
| C. <input type="checkbox"/> Consulting/Architectural Engineering Firm | H. <input type="checkbox"/> Institutional    | N. <input type="checkbox"/> Banking/Finance      |
| D. <input type="checkbox"/> Healthcare Facility                       | I. <input type="checkbox"/> Government       | O. <input type="checkbox"/> Other _____          |
| E. <input type="checkbox"/> Commercial Building                       | J. <input type="checkbox"/> Data/Telecom     |  |
|   | K. <input type="checkbox"/> Repair & Service |  |

### 3. Type of Projects you are Involved with (Check as many as apply)

- A. ☐ Commercial B. ☐ Industrial C. ☐ Residential D. ☐ All of these E. ☐ None

### 4. Number of Employees in your Organization (Check ONE only)

- A. ☐ 1-49 B. ☐ 50-99 C. ☐ 100-499 D. ☐ 500-999 E. ☐ 1,000+

### 5. Purchasing Influence (Check ONE only)

- A. ☐ Final Say B. ☐ Recommend C. ☐ Specify D. ☐ Other

### 6. How Much Electrical Equip./services Does your Company Buy or Specify Annually?

- |   |   |   |
|---|---|---|
| A. <input type="checkbox"/> Less than \$249,999 | C. <input type="checkbox"/> \$500,000-\$999,999     | E. <input type="checkbox"/> \$2,000,000-\$4,999,999 |
| B. <input type="checkbox"/> \$250,000-\$499,999 | D. <input type="checkbox"/> \$1,000,000-\$1,999,999 | F. <input type="checkbox"/> \$5,000,000 or more     |

### 7. Would you like to receive information about exhibiting in Electric West?

- A. ☐ Yes B. ☐ No

## Step 5: METHOD OF PAYMENT

☐ Check Enclosed (made payable—in U.S. dollars, drawn on U.S. bank—to PRIMEDIA Business Exhibitions.)

☐ Credit Card ☐ American Express ☐ VISA ☐ MasterCard

Card # \_\_\_\_\_ Exp. Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Signature: \_\_\_\_\_

Your registration will not be processed without full payment and signature, or if credit card is declined or invalid. **Cancellation Policy:** All cancellations must be received by Jan. 7, 2005. Refunds will be issued less a \$50 cancellation processing fee. After Jan. 7, 2005, no refunds will be made. Trade only; NO ONE UNDER 18 ADMITTED.

## Step 3: REGISTRATION OPTIONS

### ☐ Premium Pass

Includes 3-day Conference and one Professional Advancement Course. NEC Workshop not included; separate registration required. (Select PAC and Sessions in Step 4)

EARLY RATE by Jan. 9 AFTER Jan. 9

\$750. \$825.

### Professional Advancement Course - Mon., Feb. 7

☐ Full Day (Select PAC and Sessions in Step 4)

\$325. \$375.

### ☐ Full Conference

Includes 3-day Conference. Does not include PAC or NEC workshops; separate registration required. (Select Sessions in Step 4)

\$575. \$650.

### NEC® Workshops—Mon., Feb. 7 & Tues., Feb. 8

Check off session(s) selection below

☐ NEC®1 (9am - 4pm) ☐ NEC®2 (11am - 5pm)

\$325. \$375.

☐ NEC® Combo

\$550. \$625.

### ☐ Individual Day Pass

Includes all Conference Program sessions for selected day. NEC2 requires separate registration.

(Select Sessions in Step 4)

☐ Tuesday, Feb. 8 ☐ Wednesday, Feb. 9

\$325. \$375.

☐ Thursday, Feb. 10

\$250. \$300.

### ☐ Single Sessions—1 hour

(Select Sessions in Step 4)

\$100. each x \_\_\_\_ \$125. each x \_\_\_\_

### ☐ Exhibit Hall Only Pass

Includes Exhibit Hall, Keynote, Ask the Experts, and General Session. (If attending Keynote, Ask the Experts or General Session, select Session(s) in Step 4)

FREE (with this form) \$20

TOTAL AMOUNT DUE:

\$ \_\_\_\_\_ \$ \_\_\_\_\_

**On-Line Exhibit Hall registration is FREE throughout the show.**

## Step 4: CONFERENCE SELECTIONS

Please mark the sessions you plan to attend.

NEC Workshop selection(s) must be made in Step 3.

### Monday, February 7 Professional Advancement Course (select one)

9:00am-4:00pm ☐ PA1 ☐ PA2 ☐ PA3 ☐ PA4 ☐ PA5

### Tuesday, February 8

9:00am-10:00am ☐ KEY - FREE Keynote

11:00am-12:00pm ☐ 101 ☐ 201 ☐ 301 ☐ 401 ☐ 501

1:00pm-2:00pm ☐ 102 ☐ 202 ☐ 302 ☐ 402 ☐ 502

2:30pm-3:30pm ☐ 103 ☐ 203 ☐ 303 ☐ 403 ☐ 503

4:00pm-5:00pm ☐ 104 ☐ 204 ☐ 304 ☐ 404 ☐ 504

### Wednesday, February 9

9:00am-10:00am ☐ 105 ☐ 205 ☐ 305 ☐ 405 ☐ 505

10:30am-11:30am ☐ 106 ☐ 206 ☐ 306 ☐ 406 ☐ 506

1:00pm-2:00pm ☐ ASK — FREE Ask The Experts - Power Quality

2:30pm-3:30pm ☐ 107 ☐ 207 ☐ 307 ☐ 407 ☐ 507

4:00pm-5:00pm ☐ 108 ☐ 208 ☐ 308 ☐ 408 ☐ 508

### Thursday, February 10

8:30am-9:30am ☐ GES — FREE General Session

10:00am-11:00am ☐ 109 ☐ 209 ☐ 309 ☐ 409

11:15pm-12:15pm ☐ 110 ☐ 210 ☐ 310 ☐ 410

1:00pm-2:00pm ☐ 111 ☐ 211 ☐ 311 ☐ 411

## Step 6: FOUR WAYS TO REGISTER:

**On-Line:** [www.electricshow.com](http://www.electricshow.com)

**Fax:** (508) 759-4552

**Phone:** (800)-927-5007 or

(203) 358-3751

**Mail:** Electric West

c/o CDS

107 Waterhouse Rd.

Bourne, MA 02532



# The Electric West Pavilions

Industry growth is creating new opportunities for electrical professionals, and Electric West is ready to help you take full advantage of them with 3 pavilions - areas on the Show floor featuring suppliers that can help you increase your business in these high growth areas. See pages 4-5 for conference courses that can also help you learn about and operate in these high growth markets.

## **New!** The Renewable Energy Pavilion

Renewable energy products are in demand in the United States as gas and oil prices continue to increase. California in particular leads the country in implementing technologies in important areas such as wind and solar energy, as well as other renewable technologies such as hydropower, biomass, micro turbines and fuel cells. Stop by and learn about the products that commercial, industrial, and residential buildings nationwide are turning towards to meet their energy consumption needs.

## **New!** The Home Automation Pavilion

Home automation systems are becoming an everyday reality in many homes today, as more and more households recognize and take advantage of the security, convenience, energy conservation, and piece of mind these systems can provide. Visit the Electric West Home Automation Pavilion to source the products and services you need to operate in this growing market.

## The Power Quality Pavilion

Ongoing stories of blackouts, an antiquated grid system, and the threat of terrorism continue to build interest and raise awareness of the need for power quality and reliability equipment. Electric West will assist attendees looking for power quality and reliability products - including UPS, surge suppression, power monitoring equipment, grounding equipment, and harmonic filtration/conditioning - by showcasing companies that offer these products in the Power Quality Pavilion.

### EXHIBIT HALL HOURS

Tuesday, February 8 . . . . . 10:00 A.M. - 5:00 P.M.

Wednesday, February 9 . . . . . 12:00 P.M. - 7:00 P.M.

Thursday, February 10 . . . . . 10:00 A.M. - 2:00 P.M.

# Travel, Hotel, & Event Information



## Anaheim Convention Center

800 West Katella Avenue  
Anaheim, CA 92802

(714) 765-8950

Fax: (714) 765-8965

[www.anaheimconventioncenter.com](http://www.anaheimconventioncenter.com)



## Accommodations

The Coast Anaheim Hotel is a first-class contemporary hotel adjacent to the Anaheim Convention Center and only one block from Disneyland.

### Coast Anaheim Hotel

1855 South Harbor Blvd., Anaheim, CA 92802  
714-750-1811

Rate: \$106.00 S/D;

Make your reservations before January 14, 2005.

## Transportation

**AVIS** The Electric West Show is offering a discounted rate of 5%. To make a reservation call Avis Worldwide at 1-800-331-1600 and provide the Discount Rate #D086763.

**American Airlines**® Up to 10% Discount.  
Be sure to provide Authorization Number A6825AA.  
1-800-433-1790

## Shuttle Bus Service

Visit the travel page of [www.electricshow.com](http://www.electricshow.com) for discount airport transportation coupons from SuperShuttle.

## Save on Parking at your Local Airport

Finding affordable parking at your local airport can be challenging! We are pleased to offer exhibitors and attendees discounted parking at major airports all over the country. Visit the travel page of [www.electricshow.com](http://www.electricshow.com) for details.

***THERE'S NEVER BEEN  
AN ELECTRIC WEST  
LIKE THIS ONE!***

# **electric** **West** **2005**

## **Exposition & Conference**

**Tuesday-Thursday, February 8-10, 2005  
Anaheim Convention Center • Anaheim, CA**

## **Professional Advancement Courses**

**Monday, February 7, 2005**

***Get the right product from the right vendor  
at the right price, quickly and easily!***



- Learn what you need to know about the NEC® code change. Earn CEUs!
- New pavilions and courses targeting major growth markets!
- Celebrity appearance!
- Exciting new promotions!
- **3 FREE Sessions!**
- Expanded Conference program!

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