



SPONSORED BY 

# SEMINAR SCHEDULE

**WEDNESDAY**  
**AUGUST 23, 2023**

**EXPO  
OPENS AT  
1:00 PM**

## Seminars 1 – 13

SEMINAR

**1**

Room ABC  
7:30 – 9:30 a.m.  
PDH: 2 JC and City Code: 2

### GROUNDING OF ELECTRICAL SYSTEMS

**Speakers:** Phil Wentz – McClure Engineering Associates

National Electrical Code, Article 250 – Grounding and Bonding continues to be cited as the most confusing or difficult to understand article in the Code. He will review the purposes for and the basic tenets of grounding and bonding. Then he will examine various topics that have raised the most questions and confusion.

Participants will:

- Understand why electrical systems are grounded.
- Understand how electrical systems are grounded at the service entrance and at the separately derived system.
- Understand how equipment is grounded (or bonded).
- Examine questions that arise for:
  - Grounding electrodes and grounding electrode conductors
  - Separately derived systems – transformers and generators
  - Multiple building grounding
  - Swimming pools
  - Ground fault circuit interrupters and equipment ground fault protection
  - Healthcare installations
  - Other miscellaneous installations
- Review 2023 NEC changes to Article 250.

**Target Audience:** Contractors, plant maintenance, electricians, design engineers and inspectors

SEMINAR

**2**

Room D  
8:00 – 9:30 a.m.  
PDH: 1.5 JC-Elective: 1.5

### IMPACT OF LARGE SCALE EV CHARGING ON ELECTRIC DISTRIBUTION SYSTEMS AND AMEREN MISSOURI TIME OF USE RATES EXPLAINED

**Speakers:** Jim Huss and Steve Wills – Ameren Missouri

#### The Impact of Large Scale EV Charging on the Ameren Distribution System

Jim will discuss this impact from a home or business up through the distribution system. Auto manufacturers project that 52% of new car sales will be all electric by 2030. How is Ameren accounting for this potential load growth in new connections today?

This seminar will include::

- An overview of various EV charging options and loads.
- Thoughts on service sizing for EV charging to not require extensive electric work in the future.
- What Ameren is doing to avoid voltage and flicker issues.

#### Ameren Missouri Time of Use Rates Explained

Steve will discuss how these rates will benefit customers, especially those considering electric vehicles. How will an EV impact your electric bill, and how will time of use help your residential or small commercial bill?

**Target Audience:** Developers, business owners, facility managers, engineers, EV owners, EV retailers and electrical contractors

# WEDNESDAY

## AUGUST 23, 2023

SEMINAR

3

Room 101  
8:00 – 9:00 a.m.  
1.0 LU/HSW Hour / PDH: 1  
AIA Course Program #: LCH

Limited to 60 people

### LIGHTING AND CONTROLS FOR THE HEALTHCARE ENVIRONMENTS

**Speaker:** Michelle Prew, Cooper Lighting Solutions

Effective lighting in healthcare environments can, and does, contribute to improved patient outcomes, as well as improved facility safety. Lighting solutions for healthcare facilities must maximize energy efficiency, occupy less space, be flexible and adaptable to different environments, meet life safety requirements, and meet the needs of medical staff, patients and visitors. This seminar discusses current lighting trends, energy management and smart hospital requirements, and current legislation affecting lighting design considerations for healthcare facilities.

This seminar will:

- Describe current lighting trends for healthcare facilities.
- Discuss current regulations and standards impacting building codes and affecting lighting design in healthcare facilities.
- Evaluate the lighting requirements of specific areas in a healthcare facility, and specify the appropriate lighting to meet the needs of patients and medical staff.
- Discuss how lighting in a healthcare facility contributes to improved patient outcomes and reduces visitor disorientation and frustration.
- Discuss how lighting in healthcare facilities improves facility safety.
- Evaluate energy savings through controls and current safety trends to create smart hospitals through implementing connected lighting.

**Target Audience:** Architects, engineers and lighting designers

SEMINAR

4

Room 101  
9:30 – 10:30 a.m.  
1.0 LU/HSW Hour / PDH: 1  
AIA Course Program #: DDSS

Limited to 60 people

### DESIGNING A DAYLIGHT SYSTEM – FINDING THE RIGHT SHADING SOLUTION

**Speaker:** Scott Hussar – Lutron Electronics Co., Inc.

This presentation discusses the opportunities and obstacles presented by daylight, and how the use of automated dynamic fenestration systems and using the appropriate fabrics can help designers meet the goals of their project by placing the right fabric in the right place at the right time.

The participants will learn to...

- Understand the opportunities presented by daylight.
- Understand the obstacles presented by daylight.
- Identify how the various types of dynamic fenestration systems take advantage of daylighting potential.
- Understand how fabric properties affect daylighting performance and occupant comfort.
- Understand how daylighting design is enhanced through performance shading solutions.

**Target Audience:** Architects and engineers

# WEDNESDAY

## AUGUST 23, 2023

SEMINAR

5

Room ABC  
10:00 – 11:30 a.m.  
PDH: 1.5 JC-Elective: 1.5

### ELECTRIFICATION (1ST SEGMENT)

**Speakers:** Dan Bowermaster – EPRI  
Barry Frazier – Ameren Illinois  
Becky Whitman – Ameren Missouri

#### State of the Electric Vehicle Market – Customer Solutions Plus Industry Successes and Challenges for Today and the Future

Dan will outline the electric vehicles coming to market, benefits, user experience thus far, charging requirements, and what it means for residential customers, fleets, electric utilities, and society in general.

Participants will:

- Learn the state of the EV market.
- Learn what's coming.
- Learn successes.
- Learn challenges and lessons learned.
- Learn what work is going on to address current and future challenges.

#### Future Trends on EVs and Charging in the Ameren Territory

Barry and Becky will explain the current number and types of EVs and Chargers operating in Illinois and Missouri (and within the Ameren service territory) along with adoption trends and future projections.

Participants will learn:

- Status of on road EVs in the State of Illinois and Missouri and within Ameren service territory.
- Status of charging facilities in the State of Illinois and Missouri and within the Ameren service territory.
- Growth projections for Illinois and Missouri EVs and charging facilities.
- Illinois and Missouri impact from the National Electric Vehicle Infrastructure Program (NEVI).
- Illinois impact from VW funding and Clean School Bus Program.

**Target Audience:** Residential, fleet, commercial, government, contractors, non-profit and general interest

SEMINAR

6

Room D  
10:00 – 11:30 a.m.  
PDH: 1.5 JC-Elective: 1.5

### VFD APPLICATIONS, BENEFITS, DETRIMENTS, AND INSTALLATION BEST PRACTICES

**Speaker:** Charles Hummer – Agilix Solutions

VFDs (variable frequency drives) have become prevalent across many industries for precise motor speed and torque control. Understanding how VFDs work and how best to apply them are critical for optimizing processes and improving overall productivity for you or your customer's facility. This presentation will give a high-level overview of how VFDs operate, their benefits and determinants, best applications for their use and best practices for proper installation for long-term success.

Participants will learn:

- Basic understanding how VFDs work.
- How VFDs can improve processes when replacing other motor control technology.
- Best applications to utilize VFD technology.
- The problems that can occur when utilizing VFD technology.
- Installation best practices to ensure proper operation and protection of VFDs and the motor the control.

**Target Audience:** Specification engineers, maintenance staff, project managers and automation technicians in all industries that utilize motors for production processes

**Industry segments of particular interest:** Food/ beverage; pharmaceutical, mining/metals, energy, household & petcare, automotive, chemicals/plastics, oil & gas and HVAC

Limited to 60 people

## EMERGENCY LIGHTING CODES AND STANDARDS

**Speaker:** Anita Majumdar – Acuity Brands

Emergency Lighting Codes and Standards prescribing the performance requirements for illuminating the path of egress have existed for many years without change... until recently. We will revisit the requirements for life safety illumination that have been around for a long time, as well as discuss the implications of newly adopted language and technologies and how we address these changes to maintain and enhance public safety.

The participants will learn to...

- Recall the basic requirements for signage.
- Recognize the technology and performance variances for signage.
- Identify the basic requirements for egress unit equipment.
- Describe the new product and performance definitions in NFPA 70.

**Target Audience:** Architects and engineers

## ELECTRIFICATION (2ND SEGMENT)

**Speakers:** Saccoya Davis – Ameren Missouri  
Kenneth Kresyman – Ameren Missouri  
Bill Reany – Ameren Illinois  
John Maue – Ameren Missouri  
Jeff Brinker – Ameren Missouri

### Drive Savings and Sustainability

Saccoya and Kenneth will provide an overview of EV Charging incentive program and other EV related resources to help customers on their EV journey. Topics also include Fleet Electrification and EV Dealer Partnership.

This seminar will include:

- An overview of EV Charge Ahead Incentive Program for Business Customers
- An overview of fleet electrification and planning process
- How Ameren Missouri is working with auto dealerships to navigate their charging installation projects and partnering to bring more EVs on the road in Missouri

### Ameren Illinois Electric Transportation Programs

Bill will provide an overview of existing programs and incentives supporting the adoption of EVs, by customer type, in Illinois.

This seminar will discuss:

- Residential charging programs.
- Multifamily charging programs.
- Charging programs for educational and public transit facilities.
- Public charging programs.
- Programs assisting communities with charging strategies.

### Transition from Combustion to Electric in the Off-road World

John will compare and contrast combustibles to electric. Why is industry trending toward electrification? Do you have the necessary electrical infrastructure? What does a typical ROI look like and the debunking of false claims. Should I lease or purchase?

What the participants will learn:

- Three things that make electric the right choice.
- The most important choice isn't the lift truck.
- Should I lease or purchase?
- Understanding the typical load profile.
- How can you get a demo experience?

### Electrifying and De-Carbonizing Cooking

Jeff will discuss the direction of foodservice industry and trends that make electric power the clear choice in the commercial kitchen.

Participants will learn:

- Why some chefs believe that gas is better and why it isn't.
- Why dining trends are leading us toward re-thermalization vs. actual cooking and why electric is better.
- The equipment that "fast casual" restaurants use to feed you.
- How electric cooking eliminates building infrastructure.
- How electric cooking equipment can help solve the kitchen labor shortage.

**Target Audience:** Residential, fleet, commercial, government, contractors, non-profit and general interest

# WEDNESDAY

## AUGUST 23, 2023

SEMINAR

9

Room D  
12:00 noon – 1:00 p.m.  
PDH: 1 JC-Elective: 1

### SOLAR OPPORTUNITIES FOR YOUR COMMERCIAL FACILITY

**Speaker:** Craig Pals – Tick Tock Energy, Inc.

Solar is HOT! More commercial facility owners and managers are investing in solar more than ever as a strategy for reducing electricity costs and tapping lucrative incentives. This presentation will review how to assess if solar is right for you, understand possible mounting options, available incentives in Illinois and Missouri markets and illustrate project financial examples as well as financing considerations.

The participants will learn:

- Solar fundamentals and steps to assess if solar is right for you.
- Popular solar mounting options.
- Illinois and Missouri solar incentives.
- Financial options.
- Example cashflow / payback for commercial systems.

**Target Audience:** Manufacturers, warehouses and commercial facilities

SEMINAR

10

Room 101  
12:30 – 1:30 p.m.  
AIA LU / HSW 1 PDH: 1  
Provider K364 Signify 29

Limited to 60 people

### ENERGY CODES – A FACILITIES PERSPECTIVE

**Speaker:** Greg Quintero – Signify

The participants will learn to:

- Recognize the key code requirements that apply to offices.
- Modify interior lighting design to comply with new code provisions.
- Identify new lighting technologies that facilitate code compliance.
- Communicate code terminology using every-day lighting and controls terms.
- Provide provisions of current energy codes with particular emphasis on controls requirements and tenant fit-out in office applications.

**Target Audience:** Architects

SEMINAR

11

Room ABC  
2:00 – 3:00 p.m.  
PDH: 1

### ENERGY STORAGE TECHNOLOGY AND APPLICATIONS

**Speaker:** Haresh Kamath  
– Electric Power Research Institute (EPRI)

The presentation will provide an overview of the energy storage technology landscape and an understanding how energy storage can be used as an asset to maintain or improve grid reliability and operations. There will be discussion on technical challenges facing the wider use of energy storage and what can be done to address those challenges.

The participants will learn:

- Driving energy storage adoptions.
- How energy storage can be used to support grid applications.
- Energy storage attributes, including performance, safety, environmental considerations.
- Landscape of commercial and emerging technologies.
- Publicly available resources.

**Target Audience:** Utility planners, engineers, operators, regulatory compliance staff and general interest

# WEDNESDAY

## AUGUST 23, 2023

SEMINAR

# 12

Room D  
2:00 - 3:00 p.m.  
PDH: 1  
JC-Code and City Code: 1

### CODE ISSUES SEEN BY ELECTRICAL INSPECTORS

**Speaker: Rick Hill – St. Louis County**

This will be a rapid-fire question and answer period with moderator and an electrical inspector on issues that he has been addressing lately.

The electrical inspector will address individual questions from 1:00 to 2:00 p.m. and 3:30 to 4:30 p.m. in the front of the Exhibit Hall.

This seminar will discuss:

- A listing of electrical products
- Common products with listing issues
- Lighting retro fits/upgrades
- Supply chain issues
- The number of services allowed by 230.2
- Swimming pools
- Solar PV taps
- Aluminum wiring modifications
- HDPE conduit
- Protection of equipment

**Target Audience:** Electrical contractors, engineers, inspectors and electrical technicians

SEMINAR

# 13

Room A, B, C  
3:30 – 5:00 p.m.  
PDH: 1.5 JC-Code: 1.5

### DISTRIBUTED ENERGY RESOURCES AND MICROGRIDS – POWERING OUR FUTURE

**Speaker: Chad Kennedy – Schneider Electric**

This presentation will discuss the installation of microgrids, energy storage systems and other distributed energy resource systems that bring new flexibility and challenges in the use of electricity. This program will focus on the codes and standards landscape in this space and the changes which address how these systems can be safely deployed.

The participants will learn:

- The importance of NFPA 855 in the installation of Energy Storage Systems (ESS).
- How NEC Article 706, the product standard UL 9540 and special testing UL 9540A work together and what an AHJ needs to know to approve an Energy Storage Installation.
- The impact of NEC requirements on the connection of on-site sources into the premises wiring system.
- How the implementation of DER and microgrids impact the power system and what challenges are introduced.
- The allowances for using DER and microgrids as emergency system sources.

**Target Audience:** Authorities having jurisdiction, contractors, building owners, engineers, Code compliance and facility managers

# THURSDAY AUGUST 24, 2023

## IAEI Code Conference & Seminars 14 – 19

EXPO  
OPENS AT  
9:00 AM

Nearly 400 attend this conference!

### ANALYSIS OF CHANGES, 2023 NEC / CODE CONFERENCE

#### Room ABC

7:20 a.m. – IAEI Eastern Missouri Chapter Meeting

1ST SESSION: 7:30 – 11:30 a.m.

2ND SESSION: 2:00 – 6:00 p.m.

Must attend BOTH sessions to receive certificate.

Speaker: Thomas Domitrovich – IAEI

#### Q & A Panel:

Rick Hill – St. Louis County Inspection

Brian DeCarlo – St. Louis City Inspection

This presentation reviews and analyzes key changes to the 2023 National Electrical Code by highlighting and explaining revisions to residential, commercial and industrial design and installation requirements. This seminar helps professionals learn the significant changes on topics such as conductors, grounding, surge protection and outdoor emergency disconnects for dwelling units.

This Code Conference will fulfill the 8 hour-code for Jefferson County and City of St. Louis' license requirement for continuing education provided **THE LICENSEE** attends the full eight hours of the Conference. You **MUST** attend **BOTH** sessions **AND** make sure your badge is scanned each session!

The fee for the Code Conference is \$275 with registrations made before 8-1-23 and \$335 for registrations made after the 8-1-23 deadline. This fee includes **LUNCH** and the book "Analysis of Changes, 2023 NEC" which each registrant will receive and can be picked up the morning of the conference. This analysis book covers almost 400 changes made in the 2023 NEC. **A PHOTO ID IS REQUIRED TO RECEIVE THE ANALYSIS BOOK AT INSPECTORS TABLE.**

The revised 2023 Analysis now concisely answers three critical questions:

- What is the change?
- Why was it made?
- How does the change impact the electrical industry?

**Target Audience:** Contractors, electricians and engineers

SEMINAR

14

Room D

8:00 – 10:00 a.m.

PDH: 2 JC-Code: 2

### CRITICAL POWER / GENERATORS

#### Benefits of Paralleling Generator Sets

Presented by Don Dentino of Alterra Power

While operating multiple generator sets in parallel has been practiced for many years, evolving technologies and current market conditions warrant a fresh look at the benefits of this practice

#### NEC Article 700

Presented by Frank Kurz of CK Power Systems

EPO, Portable Generator Connection, Start Circuit Monitoring, Start Time, Separation

#### Generator Installation and Application Basics: Cooling, Sound, and Fueling

Presented by Mike Munson of Cummins Sales and Service

This segment seeks to bring awareness to some of the most crucial mechanical design considerations for a generator set.

#### NFPA 110: Standard for Emergency and Standby Power Systems

Presented by Chris Zahari of Fabick CAT

Presentation will include a general overview of NFPA 110 and key segments that are commonly overlooked when applying and reviewing NFPA code requirements.

#### Generator Sizing

Presented by John Sharpe of Generac Industrial Power

This segment will present methods and calculations for proper sizing of engine generators.

**Target Audience:** Engineers, designers, facility maintenance staff and contractors

# THURSDAY

## AUGUST 24, 2023

SEMINAR

15

Room 101  
8:00 – 9:00 a.m.  
AIA LU HSW: 1 / PDH: 1  
Course # 20211110DPH

Limited to 60 people

### THE FIVE PRINCIPLES OF OUTDOOR LIGHTING

**Speaker:** Lane Wallis – CREE Lighting

Transformational technologies can dramatically shift industries seemingly overnight. LED luminaires, driven primarily by economic value, had such an impact on the lighting industry. Still, short of significant economic benefit, change for the lighting industry and its stakeholders seems to move slowly. Aligning and agreeing on important principles across the industry is also made difficult by multiple sales channels and diverse industry participants, including “purchasers of light”. Purchasers of light are typically non-lighting professionals, frequently relying on others for guidance and are often price conscious, disproportionately valuing low cost over highest value. In this seminar we consider the IES and IDAs jointly adopted resolutions regarding the Five Principles for Responsible Outdoor Lighting. What are they and how can we, as lighting influencers, help educate the industry and apply these principles for better outcomes in our outdoor environments, while implementing highest valued solutions for our customers?

This seminar will:

- Explore the motivation behind the Five Principles for Responsible Outdoor Lighting.
- Review and understand the guidance within the Five Principles for Responsible Outdoor Lighting.
- Provide examples of strategies, at the application level (parking lots and street lighting), for better results as it relates to the Five Principles for Responsible Outdoor Lighting.
- Assess the potential economic value of the Five Principles for Responsible Outdoor Lighting for “purchasers” of light.

**Target Audience:** Architects, engineers and lighting designers

SEMINAR

16

Room 101  
9:30 – 10:30 a.m.  
AB934 AIA LU HSW: 1 / PDH: 1

Limited to 60 people

### HUMAN CENTRIC LIGHTING

**Speaker:** Anita Majumdar – Acuity Brands

This presentation is an introduction to Human Centric Lighting, to optimize design aesthetics, increase productivity, and improve the health and well-being of humans in an architectural environment.

Participants will:

- Understand the potential of Human Centric Lighting in context with non-lighting factors.
- Be able to apply color temperature & color quality in more optimal and creative ways.
- Recognize the growing body of research on the relationship between light, human circadian rhythms, wellness and productivity.
- Be empowered to begin applying Human Centric Lighting principles in your projects.

**Target Audience:** Architects

SEMINAR

17

Room D  
10:30 a.m. – 12:00 noon  
PDH: 1.5 JC-Code: 1.5

### ARC FLASH HAZARDS AND ARC ENERGY REDUCTION

**Speaker:** Dan Neeser – Eaton’s Bussmann Division

This seminar will discuss the basics of arc flash hazards and the history of the arc energy reduction requirements in the NEC. Methods of compliance for circuit breakers (NEC 240.87) and fuses (NEC 240.67) including documentation and performance testing as added in the 2020 NEC will be discussed. Tools and resources for calculation of arcing current and determining clearing time or operation of arc energy reduction methods will be utilized.

Participants will learn:

- Arc Flash Hazard Basics
- History of Arc Energy Reduction Requirements
- Compliance with NEC 240.87
- Compliance with NEC 240.67
- Tools and Resources for Compliance

**Target Audience:** Consulting engineers (electrical), design-build contractors, engineers and project managers for electrical contractors, electrical inspectors



# THURSDAY

## AUGUST 24, 2023

SEMINAR

# 18

Room 101  
11:00 a.m. – 12:00 noon  
AIA Course # LEEDWELL  
AIA/IES Course Credit: 1 hour  
LU / HSW / PDH: 1

Limited to 60 people

### HOW HEALTHY CAN A BUILDING BE – UNDERSTANDING WELL vs. LEED

**Speaker: Michelle Prew – Cooper Lighting Solutions**

Welcome to the WELL Building Standard! This presentation will cover the WELL standard and how it compares to LEED. We will take a look at the certifications to allow a better understanding of how the two standards differ. You will learn how each standard is scored and ultimately learn how to apply the appropriate standards to create your “healthy” building.

The participants will:

- Gain a basic understanding of LEED (Leadership in Energy and Environmental Design) standard.
- Gain a basic understanding of the WELL standard.
- Learn how the WELL Building Standard differs from LEED.
- Review the scoring systems of both standards.
- Understand how to apply the appropriate standard to create your “healthy” building.

**Target Audience:** Architects, engineers and lighting designers

SEMINAR

# 19

Room D  
12:30 – 1:30 p.m.  
PDH: 1.0 JC-Elective - 1

### DIGITAL PROTECTIVE RELAY BASICS

**Speaker: Nathan Leonard**  
– Schweitzer Engineering Laboratories (SEL)

Discuss the basics of digital relay operation, relay logic, protection requirements and protection system elements that are found in protective relays.

Participants will learn:

- Basics of relay logic.
- Protective system elements and how they operate.
- How relay word bits affect relay I/O.
- The role that protective relays play in a power system.
- The different types of faults that occur in a power system and how protective relays deal with these faults.

**Target Audience:** Electric utility employees, engineers or anyone interested in the basic concepts of protective relays and power system protection

### PDH & LU CREDITS

These seminars have been designed to qualify for Professional Development Hours (PDH) for Professional Engineers and Learning Units (LU) for Architects.

### JC CODE OR ELECTIVE (JEFFERSON COUNTY) AND CITY (CITY OF ST. LOUIS) CREDITS

Several of these seminars have been designed to qualify for professional Education Units for Jefferson County and City of St. Louis. Jefferson County requires 8 hours, but they do accept non-code (elective) hours for this requirement. City of St. Louis requires 8 hours of code for the Code cycle.