

APRIL-MAY
2021



The Electrical Distributor of Choice
capitalelectriceducation.com

TRAINING CATALOG



10% DISCOUNT for 3 or more attendees from the same company
Registration on the last page or visit capitalelectriceducation.com
NFPA70 NEC code book available for purchase for only \$89.00



PREFERRED
EDUCATION
PROVIDER



Welcome to the April-May Capital Electric Training Catalog!

COVID-19 Response – Precautions for In-Person Training Events

We recognize the importance of training and education, and we know many of you are eager to return to the classroom. Still, the safety and wellbeing of our customers and associates remains our top priority.

As we resume our in-person education classes, we want you to know that Capital Electric is committed to protecting your health and providing a safe learning environment. We will continue to adhere to federal, state, and local government guidance regarding public health.

We are also implementing the following safety precautions at all of our in-person classes:

- Hand Sanitizer and Face Masks provided to all attendees and staff;
- Limiting classroom capacity to 50% to allow for adequate physical distancing;
- Food and beverages will be served in individual containers or individually wrapped to minimize exposure;
- Elevated cleaning and sanitizing of our training venues, especially door handles, restrooms, and other high traffic areas

We ask that you help us protect the health of your fellow students attendees and staff when attending classes by wearing a face mask or covering, routinely washing hands or using hand sanitizer, and maintaining distance between yourself and others.

If you have a cough, fever, or feel sick, or if you have recently been in contact with someone diagnosed with COVID-19, we ask that you do NOT attend class that day. Please contact us as soon as possible, and we will work with you to reschedule you for a class at a later date or make other arrangements.

Capital Electric will continue to monitor this situation and evaluate our actions to help keep our associates and customers safe.

We appreciate your understanding and support during this time, and we look forward to seeing you in the near future!

If you have any questions or concerns, please do not hesitate to reach out to us by phone at 301-909-6511 or by email at events@capitalelectriceducation.com. Thank you!

TABLE OF CONTENTS

TRAINING

ABOUT OUR INSTRUCTORS	4
TESTIMONIALS	5
NEC CODE CLASSES (Mid-Atlantic Region)	
2020 NEC Analysis of Changes*	6
Transformer Installation Course*	8
Grounding and Bonding*	10
PREP CLASSES	
Fundamentals of Electrical Work	12
40 Hour Journeyman’s Prep Course.....	14
Master Prep.....	16
SAFETY CLASSES	
Arc Flash & Electrical Safety NFPA 70E*	18
NEC CODE CLASSES (Carolinas & Georgia Region)	
The NEC Today*	20
Transformer Installation Course*	22
Grounding and Bonding*	24
Residential Wiring Course*	26
Installation and Inspection of Services Course*	27
GENERAC POWER FOR PROFITS	28
SNELL LEVEL 1 INFRARED THERMOGRAPHY COURSE	30
LIGHTING TECHNOLOGY UPDATE SEMINAR	32
SAFETY FEATURE: LADDER SAFETY	33
REGISTRATION FORM	35

*Continuing Education Credits Available

Use our website 24 hours a day, 7 days a week.
Visit us at capitalelectriceducation.com!

ABOUT OUR INSTRUCTORS



Don A. Hursey retired as Durham City/County Senior Electrical Inspector after 33 years of service. He is a licensed electrical contractor for North Carolina. He received the "Instructor of the Year" Award in 2004 from the NC Board of Examiners of Electrical Contractors, and in 2008 he received the North Carolina "Electrical Inspector of the Year" Award from the NC Chapter of the IAEI. Mr. Hursey is a member of the North Carolina Ellis Cannady Chapter of IAEI Education Committee and NFPA 72 Committee. He is also the North Carolina State Fair Electrical Apprenticeship Contest Judge. Mr. Hursey is also an instructor for NFPA, UL, and the Southeastern OSHA Training Institute Education Center.

Classes Taught: Transformer Installation Course, Electrical Safety Essentials, Residential Wiring Course, Installation and Inspection of Services Course, Grounding and Bonding, The NEC Today



John F. Mayan, PE, CESCO is a licensed Professional Engineer (PE) in DC, DE, MD, and VA, as well as a licensed Master Electrician in DE and MD. With nearly 40 years of experience in the industry, Mr. Mayan is a Senior Electrical Engineer with RMF Engineering in Baltimore, where he is responsible for power systems engineering projects ranging from high voltage transmission systems to low voltage distribution and utilization. Mr. Mayan is also an NFPA Certified Electrical Safety Compliance Professional (CESCP), and he holds a Bachelor of Science in Electrical Engineering from Rochester Institute of Technology.

Class Taught: Arc Flash Safety



Wayne H. Robinson is a retired Chief Electrical Inspector and former supervisor for the Electrical Engineering Department in Prince George's County, Maryland. He holds multiple International Code Council Certifications for Electrical Inspections and Plan review. Wayne is a Master Electrician in Maryland and the District of Columbia, and has instructed numerous NEC Code courses over the past 30+ years at local community colleges, trade organizations and local governments.

He holds multiple US patents on grounding devices and has published books on Electrical Calculations, Illustrated Guide for Electricians and Inspectors, Grounding, Motor Calculations and Swimming Pool Bonding. Wayne is a current member of National Fire Protection Association (NFPA), International Association of Electrical Inspectors (IAEI) and the Maryland Uniformed Electrical Licensing and Examination Committee (MUELEC).

Classes Taught: Master Electrician Prep Course, 40 Hour Journeyman's Prep Course, Fundamentals of Electrical Work, Transformer Installation Course, Grounding and Bonding Seminar, NEC Analysis of Changes



Michael V. Robinson is a licensed Master Electrician in Maryland and the District of Columbia and site superintendent for a large electrical contractor in the D.C. Metropolitan Area. He is currently responsible for the code compliant installation of a 1.3 million square foot electrical renovation project and 50+ electricians. In addition, Michael teaches both Journeyman Prep and Master Prep classes at Capital Electric.

Beginning in the trade in 1999, Michael is a 2011 graduate and salutatorian of the Local 26 IBEW Apprenticeship. He also has a B.A. from the University of Maryland at College Park. Michael resides in Prince Frederick, Maryland, is married to wife, Kristin and has two young sons, Brooks and Wade.

Classes Taught: Master Electrician Prep Course, 40 Hour Journeyman's Prep Course, Fundamentals of Electrical Work, Transformer Installation Course



Robert A. "Bob" Preston, LC, IES is an Energy & Lighting Specialist with the Energy Solutions Group for Capital Electric. Bob is Lighting Certified by the National Council on Qualifications for the Lighting Professions (NCQLP) and is a member of the Illuminating Engineering Society of North America (IES). He has been with Capital Electric for 30 years in a variety of roles including electronics and test & measurement and has been specializing in lighting since 2006.

Bob supports energy efficient lighting activities throughout Capital Electric. He also coordinates utility incentive programs for the sales team and their customers, with particular focus on western MD and Pennsylvania. Over the last ten years, Bob has spearheaded educational lighting seminars across all of Capital Electric's market area. Hundreds of customers and employees have attended these award-winning events which have focused on the latest advancements in energy efficient lighting technology. Bob specializes in the more technical aspects of lighting applications, particularly in the rapidly developing LED marketplace.

Class Taught: Lighting Technology Update Seminars



William "Bill" O'Connell, LC, LEED AP is a Specification Regional Sales Manager for Cooper Lighting Solutions. In addition to his responsibility for sales of specification lighting products, Bill also serves as a technical resource for Cooper's rep agencies as well as lighting designers, engineering firms, specifiers, distributors, and end users, educating them on new products and technologies.

Bill has more than 20 years of experience in the lighting industry. He earned a Bachelor of Science degree in Applied Optics from the Rose-Hulman Institute of Technology along with a minor in Computer Science and a German Technical Translators Certificate. Bill began his career with OSRAM SYLVANIA in 1994 as an Optical Engineer designing optical systems for car headlamps, tail lamps and turn signals. After transferring to OSRAM SYLVANIA's general lighting division, Bill was awarded two patents, one technical and one design, for the design of SYLVANIA's SPL optical system which shapes a halogen PAR lamp's light to provide a more even, high quality distribution across a broad area.

Class Taught: Lighting Technology Update Seminars

What attendees are saying...

Snell Level I Thermography

“Not your normal course.
Come for a challenge to learn
a new skill!”

H. Huppold – Lorton, VA

Transformer Installation with Wayne and Mike Robinson

“Good information that was
well described and clear.”

A. Hartwell – Harmans, MD

Generac Power for Profits

“Very impressed - I plan to have
other employees watch next time
you have the event.”

T. Hartman – Hampton, VA

NEC with Don Hursey

“Most informative class
I’ve attended. Answered all
the questions I had.”

D. Swaim – Climax, NC

Analysis of Changes with Wayne and Michael Robinson

“A course that needs to be
taken by all in and associated
with the electrical field!”

S. Lanehart – Waynesboro, PA

John Mayan Arc Flash & Electrical Safety

“Great experience and
learned a lot!”

L. Campbell – Independence, VA

MD
CEUs

2020 NEC Analysis of Changes

National Electrical Code Seminar

Get up-to-date on the most essential changes in the NEW 2020 NEC, taught by retired Chief Electrical Inspector and industry expert, **Wayne H. Robinson***!

THIS COURSE QUALIFIES FOR 10 HOURS OF CEU CREDIT!

This updated course is based on the latest 2020 edition of the National Electrical Code (NEC). This course qualifies for 10 Credit Hours (10 for virtual class) toward continuing education requirements in the state of Delaware, the state of Maryland, and the following MD counties: Cecil, Harford, Prince George's, Queen Anne, and Wicomico. **NOTE:** The state of Virginia has **NOT** approved 2020 NEC courses for continuing education.

2 Day Seminar

8:00 AM - 2:30 PM each day

\$349 per person

**APRIL 20 & 21, 2021 • TUESDAY & WEDNESDAY
LIVE VIRTUAL COURSE**

SEPTEMBER 23 & 24, 2021 • THURSDAY & FRIDAY
York, PA
Capital Electric York, Training Facility

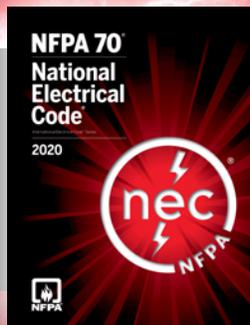
OCTOBER 28 & 29, 2021 • THURSDAY & FRIDAY
Hagerstown, MD
Capital Electric Hagerstown, Training Facility

NOVEMBER 18 & 19, 2021 • THURSDAY & FRIDAY
Upper Marlboro, MD
Capital Electric Upper Marlboro, Training Facility

Sponsored
by



PREFERRED
EDUCATION
PROVIDER



Major Changes to the code include...



Surge Protection is Required for Dwelling Units

Type 1 or Type 2 Surge-Protective Devices (SPDs) are now required for new and replaced service equipment that supplies dwellings. This protects devices not already protected by point-of-use SPDs from damage due to surges.



Ground Fault Circuit Requirements

All 125-volt through 250-volt receptacles installed in the locations specified in 210.8(A) (1) through (11) and supplied by single-phase branch circuits rated 150 volts or less to ground shall have ground fault circuit interrupter protection for personnel.



Outdoor Emergency Disconnects for Dwelling Units

Under the new NEC guidelines, outdoor emergency disconnects are now required for new construction, renovations and homes having services replaced, allowing first responders to eliminate some potential electrical hazards when necessary.

To register, see back or visit capitalelectriceducation.com

MD & VA
CEUs



Sponsored by

SQUARE D

by Schneider Electric



PREFERRED
EDUCATION
PROVIDER

THIS COURSE QUALIFIES FOR 10 HOURS OF CEU CREDIT

This course, based on the National Electrical Code (NEC), qualifies for up to 10 contact hours toward electrical continuing education credits (CEUs) in the following jurisdictions: State of Delaware, State of Virginia (3 hrs), State of Maryland, and the following MD counties: Cecil (5 hrs), Harford, Prince George's, Queen Anne's, and Wicomico.



Capital Electric

A Sonepar Company

TRANSFORMER INSTALLATION COURSE

This course is taught by Master Electricians and industry experts **Wayne Robinson** and **Michael Robinson** and is based on the National Electrical Code (NEC)

\$349 ea.

THIS IS A TWO DAY SEMINAR!

All classes 8:00 am - 2:30 pm
(unless noted otherwise)

**June 25 (4:00 - 8:00 pm) &
June 26, 2021 (8:00 am - 3:30 pm) • Friday & Saturday**
Upper Marlboro, MD
Capital Electric Upper Marlboro Training Facility

August 26 & 27, 2021 • Thursday & Friday
Hagerstown, MD
Capital Electric Hagerstown Training Facility

**October 1 (4:00 - 8:00 pm) &
October 2, 2021 (8:00 am - 3:30 pm) • Friday & Saturday**
Baltimore, MD
Capital Electric Baltimore Training Facility

To register, see back
or visit capitalelectriceducation.com

TOPICS WE'LL COVER INCLUDE:

- How transformers work
- Different types of transformer configurations – and when to use them
- Critical temperature limitations
- Basic math you need to master to properly install transformers
- Core concepts of transformer installation
- How to correctly size overcurrent devices
- Concepts to understand in conductor sizing and overcurrent device placement
- How to ground separately derived system
- Examples of total transformer calculations
- And much more

YOU'LL RECEIVE



A comprehensive, yet easy-to-understand, walkthrough of the electrical code as it applies to transformers



A step-by-step explanation of how to properly install a transformer according to code



The chance to ask any questions you have about transformer installation and the applicable electrical code



The opportunity to learn from the experience and on-the-job lessons and challenges of other experienced electricians who are participating in the training



Access to an actual transformer showing how to terminate primary and secondary conductors and appropriate grounding requirements

NO OTHER COURSE DELIVERS SUCH A DETAILED EXPLANATION OF CODE-COMPLIANT TRANSFORMER INSTALLATION – OR GIVES YOU A CLOSE LOOK AT AN ACTUAL, PROPERLY INSTALLED TRANSFORMER.

Grounding & Bonding

2-Day Seminar! Thursday & Friday • 8:00am–2:30pm

Cost: \$349

May 13 & 14, 2021

LIVE VIRTUAL COURSE

July 15 & 16, 2021

York, PA

*Capital Electric York
Training Facility*

August 5 & 6, 2021

Fairfax, VA

Residence Inn Fairfax Merrifield

October 7 & 8, 2021

Upper Marlboro, MD

*Capital Electric Upper Marlboro
Training Facility*

Grounding and Bonding is a two-day course designed to help you break down the dense topic of grounding and bonding according to the NEC Article 250 requirements and enable you to perform servicing and installations accurately and effectively.

You will be taken through an illustrated guide by an industry expert who will help you navigate NEC Article 250. You will be able to differentiate and understand the extensive surplus of technical terms, know how the proper procedures for every grounding and bonding scenario, and get the chance to have all your grounding and bonding questions answered.

What You'll Learn:

- Understand Grounding and Bonding as outlined in NEC Article 250
- Essential differences, requirements, and exceptions to Grounding and Bonding procedures
- Definition of key terms, such as: bonded, grounded, equipment bonding jumper, main bonding jumper, system bonding jumper, grounded conductor, equipment grounding conductor and more
- Systems, circuits, and equipment required, permitted or not permitted to be grounded
- Types and sizes of grounding and bonding conductors and electrodes
- And much more!

10 Hours of CEU Credit

This course, based on the National Electrical Code (NEC), qualifies for up to 10 contact hours toward electrical continuing education credits (CEUs) in the following jurisdictions: State of Delaware, State of Virginia (3 hrs), State of Maryland, and the following MD counties: Cecil (5 hrs), Harford, Prince George's, Queen Anne's, and Wicomico.

To register, see back or visit capitalelectriceducation.com

Attention:

Supervisors & Safety Managers, Maintenance Personnel, Engineers, Electricians and Qualified Workers

How You'll Benefit:

- Gain a thorough understanding of grounding and bonding procedures and avoid making simple mistakes on the job.
- Confidently assess grounding and bonding requirements of a job without getting tripped up over technical terms.
- Perform service installations quickly without compromising efficiency.
- Connect with an expert you can call if you're in a situation where you need advice.
- Navigate potential violations and avoid the risk of failing an inspection (and losing time and money to correct it).

5 Signs You Need this Training



1. Do you want to be able to confidently (and efficiently) perform proper grounding and bonding procedures without second guessing yourself?



2. Do you struggle with the extensive terms involved in the NEC Article 250 code for grounding and bonding?



3. Has a job you completed ever failed an inspection because of a grounding or bonding violation?



4. Have you ever been uncertain about what size of wire to install on the job?



5. Still need to complete required continuing education hours before the end of the year?

With the knowledge, skills and resources you'll gain in just two days in Grounding and Bonding, you'll be able to navigate the varied circumstances of any job you perform easily and effectively, without having to cross your fingers that your work will pass inspection.

Fundamentals of Electrical Work

Introduction to Basic Electrical Construction Concepts

LIVE VIRTUAL COURSE

August 2 - September 1, 2021
Mondays & Wednesdays, 4:30 – 7:30pm

Fundamentals of Electrical Work: Introduction to Basic Electrical Construction Concepts gives you the core knowledge you need to work safely, effectively and efficiently in the electrical trade.

These concepts are what every electrical contractor needs to succeed—and what your boss secretly wishes you knew already.

Based on the 2017 National Electrical Code (NEC), this 5-week training program gives you skills and knowledge to excel in entry-level positions. It also provides a strong foundation for when you start preparing for the journeyman's exam.

This course is taught by Master Electricians and industry experts Wayne Robinson and Michael Robinson and is based on the 2017 National Electrical Code (NEC)

TOPICS INCLUDE

- Intro to Electrician's Math
- Intro to Ohm's Law
- Branch Circuits Basics
- Switching and Receptacles
- Grounding and Bonding Basics
- Overcurrent Protection Basics
- Single Phase systems
- Introduction to Electrical Safety
- Plans and Symbols
- NEC Definitions
- Wiring Methods
- Conductor Properties
- ...and much more!

Early Bird Pricing

(before July 19, 2021): **\$399.00**
(must register and pay by Aug. 2)

Volume Discount = 10% off
(3 or more in attendance from the same company)

Standard Price

(after July 19, 2021): **\$449.00**
(any registrations/payments after Aug. 2)

To register, see back or visit capitalelectriceducation.com

WHO SHOULD ATTEND

Fundamentals of Electrical Work is designed specifically for people who are newer to the electrical trade, including:

- Electrical helpers, apprentices and other electrical workers with 0-4 years of experience in electrical construction with 0-4 years of experience in electrical construction
- Electricians who plan to someday take the journeyman's exam
- Anyone who is interested in becoming an electrician
- Inside sales reps and switchgear vendors who want to speak their customers' language
- Project managers and other non-electrician employees who want a better understanding of electrical construction

7 Signs You Need This Training



1. Has your supervisor ever given you an assignment that you're not comfortable performing because you don't understand it?



2. Do you want to know WHY you're supposed to perform a particular task – and WHY you need to do it a particular way?



3. Have you ever been handed a meter – without knowing what exactly to do with it ... or how to use it correctly and safely?



4. Are you uncomfortable being exposed to and working with electricity because you're not 100% certain about how to keep yourself (and others on the job site) safe?



5. Are you largely left to learn things on your own by listening and watching ... because your supervisor is too busy to spend much time teaching?



6. Do you have lots of questions about your job and working with electricity ... but no one to ask?



7. Are you confused and overwhelmed by code requirements? (You know they exist ... but you don't know the details – or how to find what you need.)

The bottom line: Whenever you step up to do something new in your job, you're probably doing it wrong. Discover the right – and safe – way to do it during Fundamentals of Electrical Work.



ATTENTION ELECTRICIANS!

40 HOUR JOURNEYMAN'S PREP COURSE

LIVE VIRTUAL COURSE

taught by Master Electrician Mike Robinson

14 SESSIONS

August 31 - October 14, 2021

Tuesdays & Thursdays

4:30 - 7:30 pm

\$549 ea.

Are you preparing to take the Journeyman licensing exam in the next few months?

Are you currently a helper electrician or an electrical apprentice/trainee, seeking to become a Journeyman Electrician?

Do you want to grow your career opportunities in the electrical contracting industry?

Do you have at least 4 years of experience working in the electrical trade?

Do you want to become a licensed Journeyman for electrical work in your local jurisdiction?

If you answered **YES** to any of these questions, then this class is for **YOU!**

Covering topics such as Grounded Conductors, Wiring Methods, Transformers, Emergency Systems, and more

\$549 ea. with a \$50 discount if registered & paid 14 calendar days before the first day of class.

**READY TO TAKE YOUR ELECTRICAL TRAINING AND
SKILL SET TO THE NEXT LEVEL?**

LEARN FROM THE EXPERTS!



**The following topics will
be covered in this 40-Hour
Journeyman's Course:**

- I. Definitions; Requirements for Electrical Installations
- II. Grounded Conductors; Branch Circuits
- III. Feeders; Outside Branch Circuits
- IV. Services; Overcurrent Protection, Taps, and Grounding
- V. Grounding
- VI. Wiring Methods
- VII. Conductors for General Wiring
- VIII. Cabinets, Cutout Boxes, and Meter Enclosures
- IX. Motors (Motors and Transformers)
- X. Auxiliary Gutters and Wireway Calculations
- XI. Transformers and Hazardous Locations (NEC); Motor Fuel Dispensing Facilities
- XII. Health Care (NEC)
- XIII. Emergency Systems, Legally Required Standby Systems, and Optional Systems
- XIV. Articles 725 and 760
- XV. Swimming Pools

**This course is based on the 2017
National Electrical Code (NEC).**

**TO REGISTER, SEE BACK OR VISIT
CAPITALELECTRICEDUCATION.COM**

Master Electrician



Capital Electric

A Sonepar Company

Prep Course

Taught by Master Electrician Wayne Robinson

LIVE VIRTUAL COURSE

16 Sessions each

**Tuesdays and Thursdays
4:30 pm - 7:30 pm**

► Oct 19 - Dec 14, 2021

ATTENTION CURRENT JOURNEYMAN ELECTRICIANS:

- Do you want to grow your career opportunities in the electrical contracting industry?
- Are you currently a Journeyman Electrician, seeking to become a Master Electrician?
- Do you have at least 6 years of experience working in the electrical trade?
- Are you preparing to take the Master Electrician licensing exam in the next few months?
- Do you want to become a licensed contractor for electrical work in your local jurisdiction?

If you answered YES to any of these questions, then this class is for YOU!

\$659 ea.

Save \$60
if registered and paid
before **October 4th, 2021!**

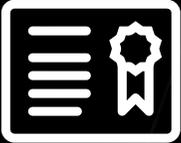
40 Contact Hours



Based on the
2017 National
Electric Code

To register, see back or visit
capitalelectriceducation.com

WHO SHOULD TAKE THIS COURSE?



Anyone interested in becoming a licensed Master Electrician or electrical contractor



Have at least 6 years experience in the electrical trade



Planning to take the master electrician licensing exam within the next few months

WHAT TOPICS ARE COVERED IN THIS COURSE?

- **Feeder and Service Calculations**
- **Voltage Drop Calculations**
- **Dwelling Occupancy Calculations**
- **Multi-Family Calculations**
- **Commercial Calculations**
- **Transformers and Fire Pump Calculations**
- **And more**

**MD
CEUs**

**Taught by
John F. Mayan**

*This one day course meets
the mandate of training
as prescribed in
the NFPA 70E 2021,
Chapter 1, Article 110.2.*

\$299 ea.

LIVE VIRTUAL COURSES

9:00 AM - 3:00 PM

Monday, May 10

Friday, June 18

Tuesday, September 28

Tuesday, November 2

Wednesday, December 1

Participants will receive a copy
of the **NFPA 70E** Standard for
Electrical Safety in the Workplace
- a \$76.00 value!



**THIS COURSE QUALIFIES FOR 5 HOURS
TOWARDS CEUs IN MARYLAND!**

Arc Flash & Electrical Safety

NFPA 70E 2021



Arc Flash & Electrical Safety Course Agenda

Upon completion of this course, you will be able to:

- Understand Arc Flash, The Causes And Effects
- Learn What Enforcement Standards Apply
- Understand How to Safely Interact With Electrical Equipment
- Learn What is Involved in the Arc Flash Analysis
- Learn How to Bring a Facility Into Compliance With NFPA 70E
- Investigate Ways to Reduce Arc Flash Hazards
- Become Qualified in the Determination of Arc Flash and Electric Shock Hazards by Demonstrating Proficiency
- See How Power Systems Analysis Is Used To Develop The Arc Flash Label

Master the Skills You Need to Confidently Assess and Navigate Arc Flash situations and Other Electrical Hazards in the Field.

With only an estimated 5 to 10 incidents happening in the U.S. every day, Arc Flashes may not be common. But when they do happen...

The results are life-changing – and horrific. An Arc Flash incident can produce temperatures up to 35,000 degrees and can cause severe burns, hearing loss, lung damage, eye injuries...the list goes on.

That's why there's been an intense focus by OSHA and the NFPA on preventing them. In fact, studies have shown that electrical injuries are likely to occur in cases where there were NFPA 70E violations.

So whether you're an experienced electrical contractor or engineer or you're newer to the industry – chances are you've been closer to an Arc Flash disaster than you realize (even if you've never personally been involved in an incident on the job).

ARC FLASH SAFETY FACTS



THERE ARE AN ESTIMATED **30,000** ARC FLASH INCIDENTS EVERY YEAR



TEMPERATURES PRODUCED FROM AN ARC FLASH CAN REACH **35,000°**



5 TO 10 ARC EXPLOSIONS OCCUR IN ELECTRIC EQUIPMENT IN THE U.S. EVERY DAY



2/3 OF ALL ELECTRICAL INJURIES RESULT FROM INAPPROPRIATE ACTION OF A WORKER



FATAL BURNS CAN OCCUR EVEN SEVERAL FEET AWAY FROM THE ARC



80% OF ELECTRICAL WORKER FATALITIES ARE DUE TO BURNS, NOT SHOCK

To register, see back or visit capitalelectriceducation.com

THE NEC TODAY

An 8-hour seminar
based on the 2020 National
Electrical Code with
Instructor Don A. Hursey

Cost: \$229

8:00 AM - 5:00 PM

TUESDAY, JUNE 22, 2021

Charlotte, NC
The Holiday Inn Charlotte University

THURSDAY, JUNE 24, 2021

Durham, NC
Capital Electric Durham Training Facility

.....
REGISTER TODAY!

To register, see back or visit
capitalelectriceducation.com

Course Objectives

This course assists electrical apprentices, journeymen, contractors, engineers, inspectors, and maintenance personnel in understanding the changes of the 2020 National Electrical Code.

8 contact hours.

Course Materials

IAEI Analysis of Changes PowerPoint Presentation, Chapters 1-4. Based on the 2020 National Electrical Code (NEC).

Course Outline

This course will cover the 2020 edition of the National Electrical Code. The Instructor will review multiple NEC topics.



Capital Electric is not affiliated with the state of North Carolina or the NC Board of Examiners of Electrical Contractors. This course, when offered during fiscal year 2021, meets the requirements of the North Carolina State Board of Examiners of Electrical Contractors for 8 contact hours toward continuing education credit. This course is not sponsored by the Board.



Articles covered include: 110, 210, 230, 240, 250, 300, 310, and 410

- General requirements for the examination and approval, installation and use, access to and spaces about electrical conductors and equipment; enclosures intended for personnel entry; and tunnel installations.
- General requirements for branch circuits.
- Service conductors and equipment for control and protection services and their installation requirements.
- General requirements for overcurrent protection and overcurrent protective devices not more than 100 volts, nominal.
- Overcurrent protection over 100 volts, nominal.
- Overcurrent protection for those portions of supervised industrial installations operating at voltages of not more than 1000 volts, nominal.
- General requirements for grounding and bonding of electrical installations, and the specific requirements.
- General requirements for wiring methods and material.



Transformer Installation Course

Tuesday, April 20, 2021

Charlotte, NC - Holiday Inn Charlotte University

Thursday, April 22, 2021

Durham, NC - Capital Electric Durham Training Facility

Tuesday, November 16, 2021

Charlotte, NC - Holiday Inn Charlotte University

Thursday, November 18, 2021

Durham, NC - Capital Electric Durham Training Facility



*This course is taught by instructor
Don Hursey and is based on the
2017 National Electrical Code (NEC)*

Cost: \$229/Person

8:00 AM - 5:00 PM

YOU'LL RECEIVE:

- ⚡ A comprehensive, yet easy-to-understand, walkthrough of the electrical code as it applies to transformers
- ⚡ A step-by-step explanation of how to properly install a transformer according to code
- ⚡ The opportunity to learn from the experience and on-the-job lessons and challenges of other experienced electricians who are participating in the training

No other course delivers such a detailed explanation of code-compliant transformer installation – or gives you a close look at an actual, properly installed transformer.

8 HOURS

of CEU Credit!

This course is approved for 8 hours of continuing education in North Carolina by the NC State Board of Examiners of Electrical Contractors (NCBEEC).



ICC
PREFERRED
EDUCATION
PROVIDER

Sponsored by





TOPICS WE'LL COVER INCLUDE:

- *How transformers work*
- *Different types of transformer configurations – and when to use them*
- *Critical temperature limitations*
- *Basic math you need to master to properly install transformers*
- *Core concepts of transformer installation*
- *How to correctly size overcurrent devices*
- *Concepts to understand in conductor sizing and overcurrent device placement*
- *How to ground separately derived system*
- *Examples of total transformer calculations*
- *...And much more!*

WHAT YOU'LL DISCOVER

THE TRANSFORMER INSTALLATION COURSE IS DESIGNED TO HELP YOU:

- ⚡ Understand the 2020 NEC as it applies to transformer installations (specifically Articles 450 and 250) ... so you can ensure that your installations are code compliant from the start, helping avoid costly time delays and the need to redo work
- ⚡ Understand multiple ways you can configure transformers to provide different voltages as required in the industry – plus quick and easy ways to figure out what's best for your job without memorizing complicated formulas
- ⚡ Understand the theory behind how transformers work ... because the better you understand the theory, the more quickly and intuitively you'll be able to solve problems, understand the code, and properly install transformers

To register, see back or visit capitalelectriceducation.com

GROUNDING AND BONDING WITH DON HURSEY



Discover the quickest and easiest way to get up-to-date on everything you need to know about grounding and bonding.

8:00 AM - 5:00 PM

TUESDAY, AUGUST 3, 2021

Charlotte, NC
The Holiday Inn Charlotte University

THURSDAY, AUGUST 5, 2021

Durham, NC
Capital Electric Durham Training Facility

Cost: \$229 ea.

To register, see the last page of this catalog
or visit: capitalelectriceducation.com

NEC REQUIREMENTS FOR GROUNDING AND BONDING is

a one-day course designed to help you break down the dense topic of grounding and bonding according to the NEC Article 250 requirements and enable you to perform servicing and installations accurately and effectively.

You will be taken through an illustrated guide by an industry expert who will help you navigate NEC Article 250. You will be able to differentiate and understand the extensive surplus of technical terms, know how the proper procedures for every grounding and bonding scenario, and get the chance to have all your grounding and bonding questions answered.

8

This course is approved for 8 hours of continuing education in North Carolina by the NC State Board of Examiners of Electrical Contractors (NCBEEC)

HOURS

WHAT YOU'LL LEARN

NEC Requirements for Grounding and Bonding covers the essential information needed by all workers who face electrical hazards. You'll better understand the general requirements for grounding and bonding electrical installations, including:

- Essential differences, requirements, and exceptions to Grounding and Bonding procedures
- Systems, circuits, and equipment required, permitted or not permitted to be grounded
- Building or structures supplied by feeders or branch circuits
- And much more!

HOW YOU'LL BENEFIT

- Gain a thorough understanding of grounding and bonding procedures and avoid making simple mistakes on the job
- Confidently assess grounding and bonding requirements of a job without getting tripped up over technical terms
- Perform service installations quickly without compromising efficiency
- Get Continuing Education Unit hours to apply to your license (8 CEUs in North Carolina)
- Connect with an expert you can call if you're in a situation where you need advice
- Navigate potential violations and avoid the risk of failing an inspection (and losing time and money to correct it)

5

SIGNS YOU NEED THIS TRAINING

- 1 Do you want to be able to confidently (and efficiently) perform proper grounding and bonding procedures without second guessing yourself?
- 2 Do you struggle with the extensive terms involved in the NEC Article 250 code for grounding and bonding?
- 3 Has a job you completed ever failed an inspection because of a grounding or bonding violation?
- 4 Have you ever been uncertain about what size of wire to install on the job?
- 5 Still need to complete required continuing education hours before the end of the year?

With the knowledge, skills and resources you'll gain in just one day in 2017 *NEC Requirements for Grounding and Bonding*, you'll be able to navigate the varied circumstances of any job you perform easily and effectively, without having to cross your fingers that your work will pass inspection.

To register, see back or visit capitalelectriceducation.com



**RESIDENTIAL
Wiring
COURSE**
WITH DON HURSEY

NEC REFERENCES COVERED

- Definitions
- Use and Identification of Grounded Conductors
- Branch Circuits
- Grounding and Bonding
- General Requirements for Wiring Methods and Materials
- Conductors for General Wiring
- Cabinets, Cutout Boxes, and Meter Socket Enclosures
- Nonmetallic-Sheathed Cable: Types NM, NMC, and NMS
- Switches
- Receptacles, Cord Connectors, and Attachment Plugs (Caps)
- Swimming Pools, Fountains, and Similar Installations

THIS COURSE...



Covers the NEC requirements for wiring a dwelling and includes specific 2020 NEC changes that are related to residential wiring.



Is approved for 4 hours of continuing education in North Carolina by the NC State Board of Examiners of Electrical Contractors (NCBEEC).

8am - 12pm

\$75 ea.

**Tuesday
October 19, 2021
Charlotte, NC**
*The Holiday Inn
Charlotte University*

**Thursday
October 21, 2021
Durham, NC**
*Capital Electric Durham
Training Facility*

Join us for Installation & Inspection of Services immediately following this course! Same day/location!

To register, see back or visit capitalelectriceducation.com

Installation and Inspection of Services Course

This course is taught by instructor Don Hursey and is based on the 2020 National Electrical Code (NEC). It is approved for 4 hours of continuing education in North Carolina by the NC State Board of Examiners of Electrical Contractors (NCBEEC).

The Installation and Inspection of Services Course covers the NEC requirements for an electrical service and it includes specific guidelines on how to achieve a code compliant installation.

Cost of Course:
\$75

NEC References Covered:

- Definitions
- Requirements for Electrical Installations
- Services
- Overcurrent Protection
- Service-Entrance Cable: Types SE and USE
- Switchboards, Switchgear, and Panelboards

Tuesday
October 19, 2021

Charlotte, NC
The Holiday Inn Charlotte University

Thursday
October 21, 2021

Durham, NC
Capital Electric Durham Training Facility



Join us for Residential Wiring immediately before this course! Same day/location!

To register, see back or visit capitalelectriceducation.com

Capital Electric will not be held liable for typos or misprints. Capital Electric reserves the right to cancel or postpone these events at any time at its sole discretion.

Generac Power for Profits™ Training for Contractors

Grow your business by learning how to size, sell, and install 10kW - 150kW standby generators.

*All Virtual
Courses FREE!*

LIVE VIRTUAL COURSES

8:00am - 11:00am

THURSDAY • APRIL 22, 2021

TUESDAY • MAY 11, 2021

WEDNESDAY • JUNE 16, 2021

THURSDAY • JULY 8, 2021

TUESDAY • JULY 27, 2021

TUESDAY • AUGUST 17, 2021

*To register, see back or
visit capitalelectriceducation.com.*

The course is facilitated by Generac factory trainers. It is ideal for your technicians new to generator sales or those technicians that need updating on the current product offerings or features. The course specifically reviews:

- Residential and Commercial Market Overview
- Generators 10kW – 150kW
- Protector Series Diesel Generators
- Back Up Options
- Transfer Switch Connections
- Site Preparation
- Fuel Considerations
- Generator Connections
- Operational Tests & Final Steps
- Sizing the Generator:
NEC 220, Part IV



Session 1.0—Residential (10-22 kW)

Focus on homes • How to size • Air cooled generators

Session 2.0—Commercial (22-150 kW)

Small to mid-sized businesses • Liquid cooled generators

Do you have any technicians who need training on:

- The market for residential generators
- The Generac Residential and Commercial Generator product offering and the new developments in the line
- How to determine what size of generator is appropriate
- Understanding load shedding
- Understanding back-up options
- Understanding transfer switch connections
- Understanding possible issues

Then, you should have them attend Generac Power for Profits™

Generators offer a tremendous sales and margin opportunity, and an ongoing service revenue source for your business. Knowing the current offering of generators is the first step to ensuring an ongoing service relationship with your customer.



The participant will receive various support & take-away materials including a Learner's Guide, Sizing Guide, and Free On-Line Training Access.



PREFERRED
EDUCATION
PROVIDER

LEVEL 1 – THERMOGRAPHIC APPLICATIONS INFRARED TRAINING COURSE



Learn Thermographic Applications For Predictive Maintenance!

Students learn the basic inspection techniques based on accepted industry and international inspection procedures.



Capital Electric
A Sonepar Company

4 Day/32-hour Certification Course
\$1,895 per attendee

Tuesday, May 18 to
Friday, May 21, 2021

8:00 am - 5:00 pm

Chesapeake, VA

Capital Electric Chesapeake Training Facility

Tuesday, September 7 to
Friday, September 10, 2021

8:00 am - 5:00 pm

Hagerstown, MD

Capital Electric Hagerstown Training Facility

Tuesday, October 12 to
Friday, October 15, 2021

8:00 am - 5:00 pm

Durham, NC

Capital Electric Durham Training Facility

This course fully meets the educational requirements for certification in accordance with Recommended Practice No. SNT-TC-1A, as defined by the American Society for Nondestructive Testing.

Continuing education credits & units / CEU's are available from the following organizations





COVERED IN THIS COURSE:

A 32-hour class covering the theory and applications of infrared thermography in the preventive maintenance, quality assurance, condition monitoring and nondestructive testing of materials fields. This class focuses on qualitative thermography and how to collect data and follow proven and published inspection procedures.

Upon completion students will be able to capture clear thermograms and make basic inferences and diagnosis. Level 1 material includes infrared theory, heat transfer concepts, operation of thermal imaging equipment and specific recommendations on how to make quality thermal images that are clear, concise and easy to interpret. Students are challenged daily with hands on demonstrations, experiments and inspection situations similar to those they will experience in their work. Students leave Snell training ready to put this amazing technology to work.

An overview of the most common applications include:

- Electrical distribution systems
- Mechanical systems
- Steam systems
- Refractories
- Underground piping
- Active thermography
- Building envelopes
- Low-slope roofs
- Nondestructive testing of materials

SPACE IS LIMITED!

To register, see back or visit capitalelectriceducation.com



2021 LIGHTING TECHNOLOGY UPDATE SEMINAR

Lighting Controls and LED

Tuesday, September 14

York, PA
Four Points Sheraton York

Wednesday, September 15

Hagerstown, MD
Capital Electric Hagerstown
Training Facility

Wednesday, September 22

Richmond, VA
Marriott Richmond
North Glen Allen

Tuesday, October 12

Baltimore, MD
Capital Electric Baltimore
Training Facility

Wednesday, October 13

Upper Marlboro, MD
Capital Electric Upper Marlboro
Training Facility

Capital Electric's award-winning Lighting Technology Updates Seminar will be back in 2021. For over 13 years, our lighting seminars have provided the latest information and education about the evolving world of lighting to thousands of customers. From Dimming LED, Lumen Equivalency, and Retrofits to Wireless Control, Horticulture lighting and Germicidal UV, Capital Electric's Lighting Seminars have covered it all. The 2021 edition will continue that tradition. Lighting is more complex than ever. We are working on pertinent, new presentations to help you understand and use today's lighting and controls technology effectively.

What customers have said about our lighting seminars:

"Fantastic presentation and educational opportunity. Thank you!"

"Thanks for the eye-opening presentations. I learned a lot!"

"Great seminar! Will be back next year with some of my employees!"

Don't miss the 2021 Lighting Technology Update Seminar. Mark your calendar now and plan to register for this exciting event.

COST: \$99

INSTRUCTORS

Bob Preston

Bill O'Connell

VENDORS

Sylvania | Cooper Lighting

Lithonia/Acuity | Signify/Philips

For More Information, Visit or Call:

CAPITALELECTRICEDUCATION.COM
301.909.6511



2021 National Work Zone Awareness Week April 26-30, 2021



Drive Safe. Work Safe. Save Lives.



www.nwzaw.org

VENUE INFORMATION

Capital Electric Baltimore Training Room

600 W Hamburg St, Baltimore, MD 21230
(410) 752-4080

Capital Electric Chesapeake Training Room

1122 Executive Blvd Suite B, Chesapeake, VA 23320
(757) 547-7222

Capital Electric Durham Training Room

4001 Stirrup Creek Dr, Durham, NC 27703
(919) 384-7093

Capital Electric Hagerstown Training Room

12101 Insurance Way, Hagerstown, MD 21740
(301) 665-3799

Capital Electric Upper Marlboro Training Room

8511 Pepco Pl, Upper Marlboro, MD 20772
(301) 909-6500

Capital Electric York Training Room

1150 N Sherman St, York, PA 17402
(717) 755-1455

Charleston Electrical Contractors Association (CECA) Training Facility

2230 Technical Pkwy, North Charleston, SC 29406

Chesapeake Conference Center

700 Conference Center Dr, Chesapeake, VA 23320
(757) 382-2500

Courtyard by Marriott Salisbury

128 Troopers Way, Salisbury, MD 21804
(410) 742-4405

Courtyard Marriott Richmond North Glen Allen

10077 Brook Rd, Glen Allen, VA 23059
(804) 266-6900

Dewey Gottwald Center

2301 W Leigh St, Richmond, VA 23220
(804) 864-1466

Doubletree by Hilton Fayetteville

1965 Cedar Creek Rd, Fayetteville, NC 28312
(910) 323-8282

Fairfield Inn and Suites Cumberland

21 North Wineow St, Cumberland, MD 21502
(301) 722-0340

Falls Church Marriott Fairview Park

3111 Fairview Park Dr, Falls Church, VA 22042
(703) 849-9400

Four Points Sheraton York

1650 Toronita St, York, PA 17402
(717) 846-4940

Hilton Garden Inn Augusta

1065 Stevens Creek Rd, Augusta, GA 30907
(706) 739-9990

Hilton Garden Inn Charlottesville

1793 Richmond Rd, Charlottesville, VA 22911
(434) 979-4442

Hilton Garden Inn Columbia Harbison

434 Columbiana Dr, Columbia, SC 29212
(803) 407-6640

Hilton Garden Inn Fredericksburg

1060 Hospitality Ln, Fredericksburg, VA 22401
(540) 548-8822

Hilton Garden Inn Greensboro

4307 Big Tree Way, Greensboro, NC 27409
(336) 852-1491

Hilton Garden Inn Washington DC/ Greenbelt

7810 Walker Dr, Greenbelt, MD 20770
(301) 474-7400

Holiday Inn Charlotte University

8520 University Executive Park Dr, Charlotte, NC 28262
(704) 547-0999

Holiday Inn Manassas Battlefield

10424 Balls Ford Rd, Manassas, VA 20109
(571) 292-5400

Holiday Inn VA Beach Norfolk Hotel and Conference Center

5655 Greenwich Rd, Virginia Beach, VA 23462
(757) 499-4400

Hotel Madison

710 S Main St, Harrisonburg, VA 22801
(540) 564-0200

Residence Inn Fairfax Merrifield

8125 Gatehouse Rd, Falls Church, VA 22042
(703) 573-5200

Hotel phone numbers are included for attendees that need room reservations. To register for a course, go to our website capitalelectriceducation.com, call 301-909-6511, fax registration form to 301-735-6279, or mail registration form to Capital Electric, Attn: Marketing Dept, 8511 Pepco Place, Upper Marlboro, MD 20772.

REGISTRATION FORM

Course Title _____

Session Date _____

Session Location _____

ITEM	QUANTITY	FEE	TOTAL
Please reserve the following number of seats		x	\$
TUITION SUBTOTAL			
I am sending 3+ employees. Please give me the team discount.		- 10% off tuition subtotal	- \$
NEC Code Books, softbound Please check: <input type="checkbox"/> 2017 <input type="checkbox"/> 2020		x \$89	+ \$
NFPA NEC Handbook Please check: <input type="checkbox"/> 2017 <input type="checkbox"/> 2020		x \$164	+ \$
NEC Tabs Please check: <input type="checkbox"/> 2017 <input type="checkbox"/> 2020		x \$16	+ \$
MY TOTAL INVESTMENT			\$

Company Name _____

Address _____

Phone _____ Fax _____

Attendee #1 Name _____ Email _____

Attendee #2 Name _____ Email _____

Attendee #3 Name _____ Email _____

Attendee #4 Name _____ Email _____

Method of Payment (Payment is required to secure your spot):

___ Check # _____ (Payable to Capital Electric; mail to address below)

___ Credit Card (Visa, Amex, MC)

Name on Card _____ CC# _____

Security Code _____ Exp Date _____

Billing Address _____ Signature _____

___ OR authorize payment with your Capital Electric Commercial Account.

Capital Electric Account# _____ PO# _____ Signature _____

4 Easy Ways To Register:

1. **ONLINE** at capitalelectriceducation.com
2. **CALL** 301-909-6511
3. **FAX** completed registration form to (301) 735-6279
4. **MAIL** your registration to Capital Electric, Attn: Marketing Dept, 8511 Pepco Place, Upper Marlboro, MD 20772

Please issue payment at time of registration in order to secure spot in seminar. Cancellations or rescheduling must be received at least 7 days in advance prior to the start of the seminar/event in order to receive a full refund or credit. No-shows and/or cancellations received after this deadline will be billed and are non-refundable.

Capital Electric thanks our educational sponsor!



by **Schneider** Electric

OUR MISSION

To be The Electrical Distributor of Choice for our Customers, Employees, and Suppliers.

We will achieve our Mission by being
Accountable • Respectful • Ethical
Profitable • Professional • Innovative



Capital Electric

A Sonepar Company

Follow us on Social Media!

