

## 2023 Bonding & Grounding Live Seminar

# Provider Information

Provider	Email	Phone
Mike Holt Enterprises	ceuonline@mikeholt.com	888-632-2633

## General Information

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### Instructors

Main Instructor: Mike Holt  
Backup Instructors: Brian House and Mario Valdes

### Course Description

This course is based on the content from *Mike Holt's Understanding the NEC requirements for Bonding and Grounding* textbook. This course brings you an accurate, in-depth coverage of one of the least understood articles in the NEC®, Bonding and Grounding. More than any other topic in the Electrical industry, Bonding and Grounding is at the core of most power quality, and safety, issues.

This dynamic presentation translates the very technical language of the NEC® into everyday electrician's language to ensure a safe Code-compliant system that is designed, installed, and inspected to reflect the significant knowledge found in the 2023 NEC®.

### Expectations and Goals

This course will teach students the common misconceptions and proper techniques regarding Bonding and Grounding by thoroughly breaking down each of the Code articles that pertain to this topic. Discussing practical applications and real-life examples that will help the student truly understand how to properly use the NEC as it relates to Bonding and Grounding.

### Class Attendance Verification and Evaluation

Students' attendance is monitored with sign-in and sign-out sheets that verify actual time spent in the course. Students will also complete a course evaluation form for the course content and the instructor. Please see the accompanying packet for a sample of the Course Evaluation sheet.

- The students' sign in form will be stamped by our check-in staff.
- At the end of the class, the sign in forms are picked up by our staff. The students are handing them to us before they exit the class.
- In order to receive credit for the course, the sign in form must have signed in and out and must be stamped and must match the identification verified on the order.

Students will be provided an instructor and course evaluation during the class. We will collect and review each evaluation.

Contact Us:

[www.mikeholt.com/ceu](http://www.mikeholt.com/ceu) | 888-632-2633 | [ceuonline@mikeholt.com](mailto:ceuonline@mikeholt.com)

## Course Materials

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The seminar is based on and instructed from *Mike Holt's Understanding the NEC requirements for Bonding and Grounding* textbook and PowerPoint Presentation. Cost to students is \$250 and they will be provided with a booklet of the presentation slides and notes. Please see the accompanying packet for a sample of the PowerPoint Presentation.

## Course Topics

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### Chapter 2 – Wiring and Protection [400 minutes]

Module	Topics	Time Spent
8:00am - 9:10am		
	<b>Article 90—Introduction to the National Electrical Code .</b>	10 min
	<b>Article 110—General Requirements for Electrical Installations</b>	10 min
	<b>Introduction to Grounding and Bonding</b> Electricity and Fundamentals Importance of understanding Bonding and Grounding Understand how and why electrical systems must be built to fail safely	25 min
	How electrical shock, electrocution, and fire happen Risks, consequences, and hazards created from misapplication of NEC Rules Review incidents occurring from poor bonding and grounding	25 min
9:10am - 9:30am	<i>Break</i>	
9:30am - 10:40am		
	<b>Part I. General</b> Differences of bonding and grounding	10 min
	Performance Requirements for Grounding and Bonding, 250.4	20 min
	Clean Surfaces, 250.12	5 min
	<b>Part III. Grounding Electrode System and Grounding Electrode Conductor</b> Introduction	10 min
	Grounding Electrode System, 250.50 Grounding Electrodes Types, 250.52 Grounding Electrode Installation, 250.53 Auxiliary Grounding Electrodes, 250.54	25 min
10:40am - 11:00am	<i>Break</i>	
11:00am - 12:00pm		
	Lightning Protection Electrode, 250.60 Grounding Electrode Conductor Installation, 250.64 Sizing Grounding Electrode Conductors, 250.66 Grounding Electrode Conductor Termination Fittings, 250.70	25 min
	<b>Part IV. Enclosure, Raceway, and Service Cable Connections</b> Introduction	10 min
	Service Raceways and Enclosures, 250.80 Metal Enclosures and Metal Raceways, 250.86	25 min
12:00pm - 1:00pm	<i>Lunch</i>	
1:00pm - 2:10pm		

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	<b>Part V. Bonding</b>	<i>10 min</i>
	Introduction	
	Bonding Metal Parts Containing Service Conductors, 250.92	<i>20 min</i>
	Bonding Communications Systems, 250.94	<i>10 min</i>
	Bonding Metal Parts, 250.96	<i>20 min</i>
	Bonding Metal Raceways and Cables Containing 277V/480V Circuits, 250.97 Bonding Loosely Jointed Metal Raceways 250.98	<i>10 min</i>
<i>2:10pm - 2:30pm</i>	Break	
<i>2:30pm - 3:40pm</i>		
	Bonding Jumpers, 250.102 Bonding of Piping Systems and Exposed, Structural Metal, 250.104	<i>25 min</i>
	Lightning Protection Systems, 250.106	<i>10 min</i>
	<b>Part VI. Equipment Grounding Conductors</b>	<i>5 min</i>
	Introduction	
	Metal Enclosures, Effective Ground-Fault Current Path, 250.109 Types of Equipment Grounding Conductors, 250.118 Identification of Wire-Type EGC, 250.119	<i>15 min</i>
	Sizing Wire-Type EGC, 250.122	<i>15 min</i>
<i>3:40pm - 4:00pm</i>	<i>Break</i>	
<i>4:00pm - 5:00pm</i>		
	<b>Part VII. Equipment Grounding Conductor Connections</b>	<i>5 min</i>
	Introduction	
	Cord-and-Plug-Connected, 250.138 Frames of Ranges, Ovens, and Clothes Dryers, 250.140	<i>15 min</i>
	Neutral Conductor for Effective Ground-Fault Current Path, 250.142	<i>5 min</i>
	Connecting Receptacle to an EGC, 250.146 Continuity and Attachment of EGCs in Boxes, 250.148	<i>25 min</i>
	Final Review and Q&A	<i>10 min</i>
<i>5:00PM - 5:05PM</i>	<i>Wrap Up</i>	<i>5 min</i>

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