

Agenda

Presented by JD White

Introduction to Grounding and Bonding

Ground/earth	Definitions
Ground fault paths/bonding	GFCI operation
Review of Ohm's law	Electric shock hazards

Grounding Electrode System

250.52 - Grounding electrodes	250.53 - Grounding electrode system installation
250.54 - Auxiliary grounding electrodes	

Grounding Electrode Conductors

250.62 - GEC materials	250.64 - GEC Installation
250.66 - GEC Sizing	250.68 - GEC and bonding
250.70 - Methods of grounding and bonding	

System Grounding Part 1

250.20 - AC systems to be grounded	250.21 - AC systems not required to be grounded
250.22 - Circuits not to be grounded	250.24(A) - System grounding connections

System Grounding Part 2

250.24(B) - Main bonding jumpers	250.24(C) - Grounded conductors in service equipment
250.30 - Grounding separately derived AC systems	
250.32 - Separate building feeders	

Equipment Grounding and Conductors Part 1

250.110 - Equipment fastened in place	250.114 - Equipment connected by cord and plug
250.119 - ID of equipment grounding conductors	
250.120 - EGC Installation	250.122 - EGC sizing
250.126 - ID of wiring device terminals	

Equipment Grounding and Conductors Part 2

250.110 - Equipment fastened in place	250.114 - Equipment connected by cord and plug
250.119 - ID of equipment grounding conductors	
250.120 - EGC installation	250.122 - EGC sizing
250.126 - ID of wiring device terminals	

Bonding Part 1

250.90 - General requirements	250.92 - Bonding of services
250.96 - Bonding other enclosures	

Bonding Part 2

250.102 - Bonding conductors and jumpers
250.104 - Bonding pipe systems and structural metal
250.106 - Lightning protection systems

Methods of Equipment Grounding

250.130 - EGC Connections
250.136 - Equipment considered grounded
250.142 - Grounded conductor and grounding equipment
250.148 - EGC continuity and attachment

National Electrical Code 2017: Grounding and Bonding

Coraopolis, PA - Friday, May 15, 2020

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Learning Objectives

You'll be able to:

Understand and use common terminology found in the National Electrical Code.

Review Ohms law, and discuss ground fault paths and electric shock hazards.

Review requirements for grounding electrode systems.

Identify AC systems to be grounded and AC systems not required to be grounded.

Differentiate grounding requirements for equipment fastened in place and equipment connected by cord and plug.

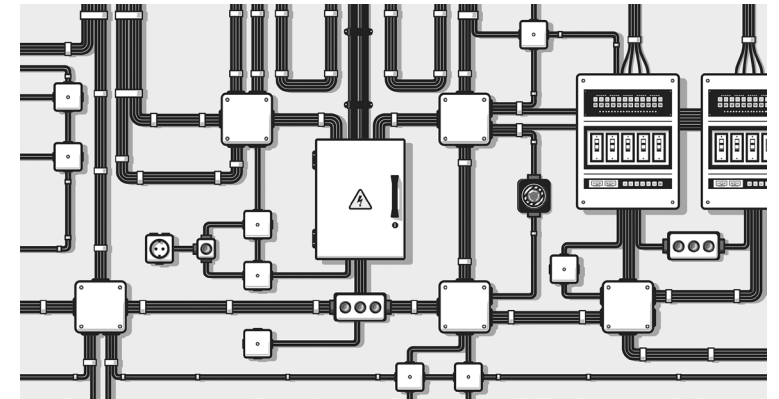
Comply with requirements for bonding of services, and for bonding conductors and jumpers.



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National Electrical Code 2017: Grounding and Bonding

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Review the basics of grounding and bonding

Get tips on system grounding

Learn about grounding electrode conductors

Comply with general requirements for bonding

Review requirements for equipment grounding and conductors

Discuss methods of equipment grounding

Continuing Education Credits

Professional Engineers

7.0 PDHs

International Code Council

.7 CEUs (Electrical)

Architects

7.0 HSW Continuing Ed. Hours
7.0 AIA LU|HSW

Contractors

Non-Credit Continuing Ed.

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Faculty

JD White *Consultant at Freelance Electrical System Design and Drafting*

Mr. White’s past ten years with Columbus State Community College in Columbus, Ohio, as its Skilled Trades Program coordinator, has provided him with insights beyond teaching, including migration to semesters, and providing oversight of 144 apprenticeship courses and 28 open enrollment courses covering construction, carpentry, electrical, plumbing, and welding. Mr. White helped craft 15 plans for study for various certificates, AAS majors, and ATS majors. He has been an active part of articulation agreements, with various vocational career programs and apprenticeship programs. He started a new open enrollment program in June of 2007, which had over 200 active students, and filled 28 course sections per term, prior to him handing it over to a new faculty member. Mr. White is presently working with 10 apprenticeship partnerships with annual enrollment of 1,500 students. He has oversight of five labs, equipment, materials, and lab personnel.

Here’s what past attendees had to say about the program and presenter JD White:

“JD was great.” – *General Contractor*

“Great presenter. Kept full group engaged.” – *Consulting Engineer*

“Probably the best HEI course I have attended!” – *Civil Engineer*

“Instructor is an expert on this topic.” – *Electrical Engineer*

Seminar Information

Pittsburgh Airport Marriott 777 Aten Road Coraopolis, PA 15108 (412) 788-8800	Registration 8:00 - 8:30 am Morning Session 8:30 am - 12:30 pm	Lunch (On your own) 12:30 - 1:30 pm Afternoon Session 1:30 - 5:00 pm
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Tuition

\$299 for individual registration

\$279 for three or more simultaneous registrations.

Included with your registration:
Complimentary continental breakfast and printed seminar manual. Registration does not include a copy of the Code itself.

Receive a reduced tuition rate of \$101 by registering to be our on-site coordinator for the day. For availability and job description, please visit www.halfmoonseminars.org.

How to Register

- Visit us online at www.halfmoonseminars.org
- Mail-in or fax the attached form to 715-835-6066
- Call customer service at 715-835-5900

Cancellations: Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the self-study package. You may also send another person to

Additional Learning

Webinar Series

Distributed Batteries for Solar PV Systems

- **Distributed Batteries for Solar PV Systems, Part I**
Thurs., April 2, 2020, 11:00 AM - 2:15 PM CDT
- **Distributed Batteries for Solar PV Systems, Part II**
Fri., April 3, 2020, 11:00 AM - 2:15 PM CDT

Compliance with the 2018 International Building Code

- **Compliance with the 2018 International Building Code, Part I**
Wed., April 8, 2020, 11:00 AM - 1:00 PM CDT
- **Compliance with the 2018 International Building Code, Part II**
Wed., April 8, 2020, 1:30 - 3:30 PM CDT
- **Compliance with the 2018 International Building Code, Part III**
Thurs., April 9, 2020, 11:00 AM - 12:30 PM CDT

For more information and other online learning opportunities visit:
www.halfmoonseminars.org/webinars/

Tree Science

- **Biology and Benefits of Trees**
Wed., April 15, 2020, 11:00 AM - 1:00 PM CDT
- **Tree Infrastructure: Design Elements That Appreciate**
Wed., April 15, 2020, 1:30 - 3:00 PM CDT
- **Trees and Site Requirements**
Thurs., April 16, 2020, 11:00 AM - 12:00 PM CDT
- **Project Completion and Tree Threat Prevention**
Thurs., April 16, 2020, 12:30 - 2:30 PM CDT

Structural Forensic Engineering

- **Overview of the Role of Forensic Engineering**
Thurs., April 16, 2020, 11:00 AM - 12:30 PM CDT
- **Forensic Engineering Process and Forensic Engineering Report**
Thurs., April 16, 2020, 1:00 - 3:00 PM CDT
- **Causes of Structural Failures**
Fri., April 17, 2020, 11:00 AM - 12:30 PM CDT
- **Forensic Examination of Structures and Use in Litigation**
Fri., April 17, 2020, 1:00 - 3:00 PM CDT

Continuing Education Credit Information

This seminar is open to the public and offers 7.0 PDHs to professional engineers and 7.0 HSW continuing education hours to architects in many states, including Pennsylvania. Educators and courses are not subject to pre-approval in Pennsylvania.

The American Institute of Architects Continuing Education System has approved this course for 7.0 LU|HSW (Sponsor No. J885). Visit www.halfmoonseminars.org for complete AIA/CES course information under this seminar listing. Only full attendance is reportable to the AIA/CES.

Architects and engineers seeking continuing education credits in other states will be able to claim the hours earned at this seminar, in most cases. Refer to specific state rules to determine eligibility.

The International Code Council has approved this event for .7 CEUs in the specialty area of Electrical (Preferred Provider No. 1232).

This course offers a non-credit continuing education opportunity to construction contractors. It has not been approved by any contractor licensing entity for mandatory continuing education credit.

Attendance will be monitored and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

Can’t Attend? Order the Manual and Audio from the Live Seminar as a Self-Study Package!

Audio recordings of this seminar are available for purchase starting at \$279. See registration panel for more information and please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

Registration

National Electrical Code 2017: Grounding and Bonding

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How to Register	
Online: www.halfmoonseminars.org	
Phone: 715-835-5900	
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Complete the entire form. Attach duplicates if necessary.	
Registrant Information Name: _____ Company/Firm: _____ Address: _____ City: _____ State: _____ Zip: _____ Occupation: _____ Email: _____ Phone: _____ Additional Registrants: Name: _____ Occupation: _____ Email: _____ Phone: _____ Name: _____ Occupation: _____ Email: _____ Phone: _____ Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred. () I need special accommodations. Please contact me.	

Tuition

() **I will be attending the live seminar.** Single Registrant - **\$299.00**. Three or more registrants from the same company registering at the same time - **\$279.00** each.

() **I am not attending.** Please send me the self-study package:

☐ Downloadable MP3 Audio/PDF Manual for **\$279.00**.

☐ CD/Manual Package for **\$299.00**. ☐ USB/Manual Package **\$299.00**.
(S&H included. Please allow five weeks from seminar date for delivery)

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