Agenda

Presented by Ron Shapiro, PE

Introduction to Grounding and Bonding Part 1

Definitions

Introduction to Grounding and Bonding Part 2

Review of Ohm’s Law

Ground fault paths - basic

National Electrical Code 2017:

Grounding and Bonding

Cherry Hill, NJ - Friday, May 15, 2020

Discuss an overview of grounding and bonding within the NEC 2017

Analyze specifics of grounding electrode systems

Review grounding electrode conductors

Examine system grounding within the NEC 2017

Learn about bonding, equipment grounding and conductors, and methods of equipment grounding

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Grounding Electrode System

250.50 - Grounding electrode system

250.52 - Grounding electrodes

250.53 - Grounding electrode system installation

250.54 - Auxiliary grounding electrodes

Grounding Electrode Conductors

250.62 - Grounding electrode conductor 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

Bonding Part 1

250.90 - General requirements

250.92 - Bonding of services

250.96 - Bonding other enclosures

Ground fault paths - advanced

Bonding Part 2

250.102 - Bonding conductors and jumpers

250.104 - Bonding pipe systems and structural metal

250.106 - Lightning protection systems

Equipment Grounding and Conductors

250.110 - Equipment fastened in place

250.114 - Equipment connected by cord and plug

250.118 - Types of Equipment Grounding Conductors

250.119 - ID of equipment grounding conductors

250.120 - EGC installation

250.122 - EGC sizing

250.125 - ID of wiring device terminals

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

Learning Objectives

You’ll be able to:

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

Review Ohm’s 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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Introduction to Grounding and Bonding Part 1

Definitions

Introduction to Grounding and Bonding Part 2

Review of Ohm’s Law

Electric shock hazards

250.36 - High-impedance grounded neutral systems

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Ron Shapiro, PE  DLB Associates

Mr. Shapiro is a professional engineer licensed in New York State and has been practicing in the field of data center design and construction related electrical engineering for almost 30 years. Mr. Shapiro has a diverse background in the design and development of reliable electrical distribution, emergency power, lighting, and fire protection systems for commercial, educational, industrial and healthcare data center facilities. He is experienced in conceptual and actual critical electrical system design, coordination of internal and external trades, client communication and construction administration. Mr. Shapiro also has experience with power distribution design (switchgear, switchboards, transformer, standby power generation, UPS, and associated protection schemes), fire alarm (air aspiration and addressable types), system and raised floor grounding, access control and CCTV, lighting design and associated manual or automatic controls, short circuit, coordination and arc flash studies, voltage drop, lightning protection, and miscellaneous power. He has also provided analysis/evaluation of existing and new electrical distribution systems and ancillary electrical infrastructure.

Mr. Shapiro plays a critical role as technical code/thory adviser and internal educator for DLB Associates. He has coauthored “NEC 645 Might Not Be for You” and “A Comparison Of Arc-Flash Incident Energy Reduction Techniques Using Low-Voltage Power Circuit Breakers.” Mr. Shapiro has lectured regarding varied data center related electrical topics such as “Fire Alarm Monitoring and Control Systems” for the Society of Fire Protection Engineers, and “Are We Ready for DC in the Data Center,” “Arc Flash in the Data Center Environment” and “Industry Trends in Electrical Systems” for the Data Center Journal. He has recently presented the 2017 NEC Update Seminar with HalfMoon Education.

Seminar Information

Holiday Inn Philadelphia-Cherry Hill
2175 West Marlton Pike
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$299 for individual registration
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Included with your registration:
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