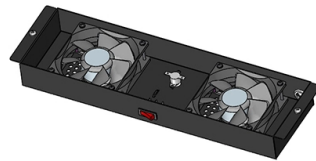


Grounding Requirements for the Top Busbar



Overview

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Key Takeaways

The top busbar must be securely bonded to the enclosure, sized for fault currents, and connected to the grounding electrode system in compliance with NEC, UL, and TIA standards.

Purpose and Function

The top busbar, often referred to as a ground bus bar, serves as a central point for all equipment grounding conductors (EGCs), providing a low-impedance path to the earth. It ensures that all exposed metal parts and equipment share a common reference potential, minimizing dangerous voltage differences during faults or transient events and protecting both personnel and equipment.

Material and Sizing

Ground busbars are typically made of copper or aluminum, with copper preferred for its superior conductivity. The size of the busbar should accommodate the number of grounding connections and the expected fault current. Tin plating is often applied to improve corrosion resistance and ensure reliable long-term connections.

Installation Requirements

- **Bonding to the Enclosure:** The top busbar must be directly bonded to the metal enclosure; it should never be isolated, unlike neutral bars in subpanels.

- **Connection to Grounding Electrode System:** The busbar must tie into the building's grounding electrode conductor (GEC) to maintain a continuous path to earth .
- **Equipotential Plane:** Proper installation ensures an equipotential plane, reducing voltage differences between panels, racks, and equipment during faults .
- **Connection Methods:** Conductors can be attached using compression lugs, mechanical fasteners, or exothermic welds. For telecommunications applications, 2-hole compression lugs with antioxidant compounds are recommended to ensure reliable bonding .

Compliance Standards

- **NEC Article 250:** Governs grounding and bonding for safety, specifying how EGCs and GECs must connect to the grounding electrode system .
- **UL 467:** Ensures busbars and hardware can handle mechanical and electrical stresses in North America .
- **TIA-607-D / ANSI/TIA/EIA-607:** For telecommunications, the Telecommunications Main Grounding Busbar (TMGB) must follow TIA-607-D guidelines, providing a structured grounding point for racks, cages, and IT equipment .

- **CSA C22.2 No. 41:** Applicable in Canada for similar grounding components .

Special Considerations

- **Separation in Subpanels:** Neutral and ground must be separated in subpanels to ensure ground conductors carry current only during faults .
- **Telecommunications Spaces:** TMGBs should be sized to accommodate multiple connections and maintain excellent conductivity and mechanical strength .
- **Maintenance and Inspection:** Ensure all connections are tight, corrosion-free, and compliant with listed standards to maintain safety and performance . By following these requirements, the top busbar will provide a reliable, code-compliant grounding system that protects both personnel and equipment while maintaining system integrity.

Article Content

Grounding Requirements for Electrical Cables, Cable Trays, and

Guidelines for grounding electrical cables, busbars, and cable trays in wiring projects, ensuring safety and compliance

CENTERLINE 2100 Motor Control Centers Joining and Splicing

See Torque Requirements on page 17. Ground Bus (Top Option(1)) Top Wireway Top Mounted Neutral (Optional) Phase 1 Power

SPECIFICATION STANDARD Grounding and Bonding for

Bonding and grounding all conduits, cable trays, enclosures, cables, protectors, and other conductive infrastructure as per the

Related Video Reference

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