

Requirements for the perimeter of the secondary distribution box



Overview

Requirements for the positioning of secondary distribution boxes This explanation aims to clarify the roles and functions of primary, secondary, and tertiary.

Key Takeaways

Secondary distribution boxes must be installed with adequate clearance, non-combustible materials, proper grounding, and environmental protection to ensure safety and accessibility. Location and Clearance

The SDB should be installed close to the power supply to minimize voltage drop and power loss, while maintaining a safe distance from other buildings or structures—typically at least 5 meters unless otherwise specified by local codes (). The installation site should be dry, well-ventilated, and free from corrosive or humid conditions to prevent overheating and equipment degradation ().

Enclosure Material and Protection

The box should be made of non-combustible materials, such as powder-coated steel or GRP (glass-reinforced plastic), to resist fire and environmental damage (). It should also have weather-resistant and dust-proof properties, with appropriate IP or NEMA ratings depending on indoor or outdoor installation (). For outdoor installations, UV resistance and corrosion protection are essential.

Height and Accessibility

The bottom edge of the SDB is generally installed 1.5 to 1.8 meters above ground to allow convenient operation and inspection (). The box must be firmly fixed using mounting brackets or screws to prevent movement due to vibration or accidental impact.

Wiring and Safety

All internal wiring should use high-temperature resistant copper conductors with cross-sectional areas suitable for the load. Cable entries and cover joints must be sealed to prevent dust or moisture ingress (). The metal enclosure, internal mounting plates, and electrical appliances must be properly grounded, and a leakage protector should be installed for additional safety ().

Special Considerations

In flammable or explosive environments, explosion-proof SDBs must be used, following specific explosion-proof grades and material requirements (). The SDB may include terminal blocks for custom wiring, busbars, MCBs, RCCBs, RCBOs, and surge protective devices, all arranged to allow safe operation and maintenance ().

Summary

To ensure safety and compliance, the perimeter and installation of a secondary distribution box must consider:

- Adequate clearance from other structures (≥ 5 meters)
- Non-combustible, weather-resistant materials
- Proper grounding and protective devices
- Sealed cable entries and dust/moisture protection
- Accessible height (1.5–1.8 meters) and secure mounting
- Compliance with local electrical codes and standards () Following these requirements ensures the SDB operates safely, is accessible for maintenance, and is protected from environmental hazards.

Article Content

Secondary Distribution Box

The Secondary Distribution Box (SDB) receives power from Main Power Distribution box via an extender cable and provides a

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