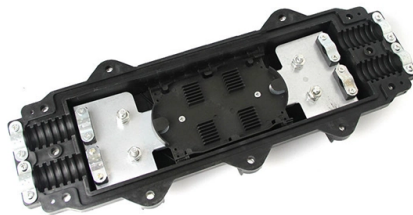


Wiring temperature of distribution box



Article Overview

The wiring inside a distribution box should use conductors rated for at least 75°C, with terminations typically rated at 60°C, 75°C, or 60/75°C depending on the equipment.

Wiring and Insulation Requirements

When installing wiring in a distribution box, it is essential to use high-temperature resistant copper core wires that meet the load current requirements of the circuits . The insulation rating of the conductor must be compatible with the maximum operating temperature of the distribution equipment. For most electrical equipment rated 600 V and below, terminals are rated at 60°C, 75°C, or 60/75°C, and the conductor insulation should match or exceed these ratings . Using wires with a lower temperature rating than the terminal can lead to insulation degradation and potential safety hazards.

Considerations for Safe Operation

- **Load and Heat Management:** Overloaded circuits or loose connections can create localized hot spots, increasing the temperature inside the distribution box . Proper load balancing and secure connections help maintain safe wiring temperatures.
- **Equipment Ratings:** Some devices, such as 100% rated circuit breakers or fluorescent lighting fixtures, may require conductors with 90°C insulation, but the terminations in the distribution box may still be rated for 75°C or 60°C . In such cases, the ampacity of the wire is based on the lower termination rating.
- **Environmental Factors:** Ambient temperature, ventilation, and enclosure design af...

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The NEC Rules

This circuit must be wired with a conductor that has an insulation rating of at least 75°C (due to the circuit breaker) and sized based

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