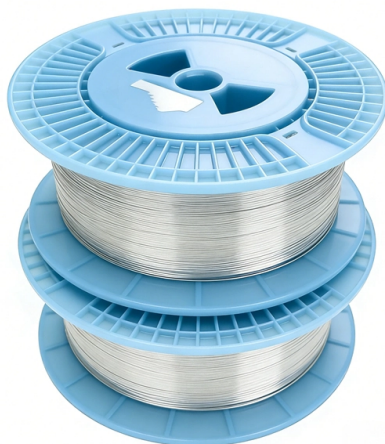


Surface-mounted electrical box with repeated grounding



Overview

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Key Takeaways

When installing multiple receptacles in a surface-mounted metal box, the equipment grounding conductor (EGC) must connect directly to the box, and self-grounding receptacles alone are not sufficient for code compliance. Grounding Requirements

For metal surface-mounted boxes, the National Electrical Code (NEC) requires that the equipment grounding conductor (EGC) be connected directly to the metal box. This ensures that the box itself is bonded and provides a safe path for fault currents. Simply relying on a self-grounding receptacle to bond the box is not sufficient, especially when adding additional receptacles or circuits later .

Multiple Receptacles in One Box

When installing two or more receptacles in a single surface-mounted box:

- Each receptacle should have a ground pigtail connecting it to the box if the box is metal .
- If the box has a metal cover, the cover may not require a separate bonding jumper to the receptacle, but the EGC must still terminate on the box itself .

- Self-grounding receptacles can supplement grounding but cannot replace the direct connection of the EGC to the box .

Handling Multiple Circuits

If multiple circuits are run to the same box:

- Each circuit must have its own neutral and hot conductors, but care must be taken to avoid violations such as running two separate neutrals to an outbuilding without proper configuration .
- Using a double-pole breaker for two 20A circuits can simplify grounding and neutral management, effectively treating it as a single branch circuit .

Practical Installation Tips

- Use a surface-mounted box with an earth terminal or grounding lug for easy connection of the EGC .
- Ensure all metal parts, including the box and cover, are properly bonded.
- When expanding a box from a single to a two-gang configuration, always add ground pigtails to each receptacle and the box to maintain compliance .

Summary

For safe and code-compliant installation of surface-mounted electrical boxes with multiple receptacles:

- Connect the EGC directly to the metal box.
- Use ground pigtails to each receptacle.
- Do not rely solely on self-grounding receptacles.
- Ensure proper handling of multiple circuits and neutrals.
- Bond metal covers as required by NEC 250.146(A)(2) when applicable . Following these practices ensures both safety and compliance with electrical codes when installing surface-mounted boxes with repeated grounding.

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