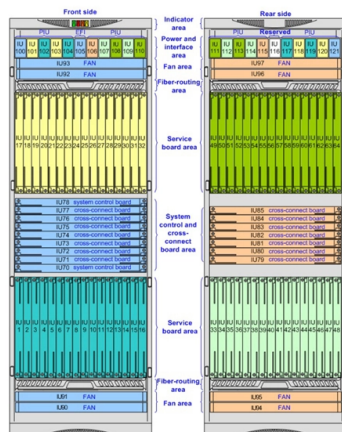


Does a secondary distribution box still need a ground wire



Article Overview

Yes, a secondary distribution box (subpanel) still requires a ground wire, which must be separate from the neutral.

Grounding and Neutral Separation

A subpanel is a secondary distribution point that extends electrical service from the main panel. According to the National Electrical Code (NEC), the neutral and ground wires must remain separate in a subpanel. The neutral bus bar should be isolated from the panel enclosure, while a separate grounding bus bar is bonded to the enclosure and connected to the grounding system. This separation prevents neutral current from flowing on metal parts, which could energize the subpanel chassis or connected metal components, creating a safety hazard.

Ground Wire Connection

The subpanel must have a grounding conductor that connects back to the main panel's ground bus. If the subpanel is in the same building as the main panel, a single ground wire is sufficient, sized according to NEC Table 250.122. This wire ensures that fault currents have a low-impedance path back to the source, allowing overcurrent protection devices to trip quickly.

Grounding Electrodes for Detached Buildings...



Article Content

Dec 29, 2025

Why are Neutral and Ground Wires Bonded in a Subpanel?

According to NEC Article 250, both the neutral and ground wires must be connected only in the main panel or at the first service

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Why are Neutral and Ground Wires Separated in a Subpanel?

According to NEC Article 250, neutral and ground wires must remain separate in subpanels. Bonding (connecting) the neutral and

Jan 21, 2026

Metal outlet box. Do I have to ground to it or is just my 15A ...

Ideally, you would want a continuous ground going from your outlet, to the box, to the panel's ground bar. But seeing as thats not an

May 19, 2026

Understanding Ground Rod Requirements for Sub Panels: What You Need

Always ensure that the ground system is thoroughly inspected and tested by a qualified electrician. How do I connect

Jun 10, 2026

When to Separate Ground and Neutral in a Panel

In all panels located downstream from the main service entrance, known as subpanels, the neutral and ground

Dec 08, 2025

Do I ground to box or back of outlet?

Electrical - AC & DC - Do I ground to box or back of outlet? - I just moved an outlet in my house by installing an

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Subpanel Grounding and Neutral: Separated or On Same Bar?

If you bond at subpanels, you technically defeat the purpose of a ground wire because the ground fault will end up in

Dec 02, 2025

Ground Wire: What Exactly Does a Ground Wire Do?

How to Add a Ground Wire to an Outlet Adding a ground wire to an outlet is a potentially hazardous task and should be

Sep 16, 2025

No ground wire in electrical box (very old building)

If you should 120V box to hot then the box is grounded. Put a ground pigtail with a 10-32 ground screw in the back of the box and tie

Nov 28, 2025

Is it ok to use a ground rod at a subpanel instead of a fourth wire?

There sure seems to be a lot of confusion about this even among electricians. I have had contradicting answers but to

Feb 11, 2026

Subpanel Grounding: Answers to Common Questions

subpanel grounding violations. The grounded conductors and the equipment grounds are connected to the same terminal bar,

Aug 02, 2025

electrical

This post mentions that it is now legal to add a separate wire to ground an outlet. What is the proper way to do this?

May 22, 2026

JLC Field Guide: Grounding

JLC Field Guide: Grounding The purpose of grounding is safety: A ground wire generates a short circuit and trips the

Sep 03, 2025

How to Wire a Subpanel: NEC Compliance Guide

The single most important rule for sub panel wiring is separating neutral and ground. The neutral bus bar must be

Jan 27, 2026

How to Properly Ground a Sub Panel

Proper grounding and bonding of this secondary panel are necessary safety measures. The grounding system

Jul 27, 2026

Main service electric panel has no neutral wire

The sub panel has 2 hot wires coming in the top and a ground. All breakers in the sub panel connect their neutral wire and their

Jul 26, 2026

Home Electrical Wiring | Sub Panel Grounding and Neutrals

Understanding Grounding for Sub Panels: When you add a second electrical panel with separate neutral and common bars, do you

Jan 21, 2026

Transformer Grounding: Navigating NEC Article 250 and Separately ...

When forming a new system, unless the transformer is bonded to ground, the secondary system will remain

Oct 04, 2025

electrical grounding

So any given outlet only needs its ground to go to the nearest place with thick enough wire back to the panel. That

Jan 23, 2026

Understanding Ground Rod Requirements for Sub Panels: What You

The answer to whether you need a ground rod for a sub panel largely depends on the specific circumstances of your

Feb 23, 2026

How to properly ground a subpanel in detached building?

The grounding electrode and the grounding conductor serve different purposes, and one does not replace the other. The grounding

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What to Do if There Is No Ground Wire | What to Do Next?

C. What to do if there is no ground wire in a switch? If there is no ground wire in a switch, you can still safely use it if the wiring is

Jul 13, 2026

Electrical Panel Grounding and Bonding

The topic of grounding and bonding is a never ending area of confusion. The difference between a service panel and

Sep 30, 2025

Transformer Grounding: Navigating NEC Article 250 and Separately ...

Separately Derived Systems and Galvanic Isolation This is important to understand, because transformers will, in

Jan 17, 2026

Grounding requirements for main panel and subpanel

If an additional ground is installed then a minimum of 6" spacing is required between them. The only time the neutrals

Oct 17, 2025

Grounding and UL 508A Standards

Additional rules for the grounding and bonding of industrial control panels include the sizing of ground conductors and

Mar 19, 2026

electrical

I want to put grounded outlets in each of the duplex slots, but there are only 2 black wires and two white wires in the

May 16, 2026

Home Electrical Wiring | Sub Panel Grounding and Neutrals

A second panel or sub panel should have the neutral and ground terminals or bars isolated from each other, this is why the main

Sep 28, 2025

Why does a subpanel need separate ground and neutral?

Why does a power sub panel have to have separate neutral and ground bars other than code satisfaction? Does a sub panel need a

Contact Us

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