Concealed installation of complete electrical distribution boxes

Overview

NEC Article 314 establishes requirements for the installation and use of electrical boxes, conduit bodies, fittings, and handhole enclosures.

Key Takeaways

A distribution box can be safely concealed by embedding it in a wall while maintaining proper alignment, accessibility, and compliance with electrical codes.

Wall Embedding and Mounting

For concealed installation, the distribution box should be embedded in the wall. The reserved hole must be approximately 20mm larger than the box dimensions to allow for plastering and finishing, with a depth equal to the box thickness plus the plaster layer. The box should be firmly fixed, horizontal and vertical, with a vertical deviation not exceeding 3mm.

Any gaps around the box should be eliminated, and contact surfaces coated with anti-corrosion paint if necessary. When embedded in masonry, concrete can be used to secure the box in place.

Wiring and Electrical Safety

Inside the box, proper wiring practices are essential. Power lines should be connected to the correct terminals, and fuses installed vertically to prevent electric shock during maintenance. Different voltage levels should be clearly labeled, and neutral (N) and protective earth (PE) busbars must be separated and numbered for clarity.

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Grounding, correct wire gauge, and proper insulation are critical to ensure safety and compliance with standards.

Accessibility and Clearance

Even when concealed, the box must remain easily accessible for maintenance and emergency shut-off. According to safety codes, a minimum working space of 36 inches in depth and 30 inches in width must be maintained in front of the panel, with a vertical clearance of at least 6 feet 6 inches. Any covering must be non-permanent and tool-less, such as hinged artwork, mirrors, or lightweight sliding panels, allowing instant access.

Aesthetic Integration

Concealment can be achieved using decorative screens, shallow cabinets, or hinged panels. The covering should not obstruct the panel door from opening fully to 90 degrees, and the surrounding structure must remain movable to maintain the required working space. Lightweight materials like canvas, bamboo, or thin wood are recommended to avoid obstruction during emergencies.

Compliance and Testing

Ensure the installation complies with local electrical codes (e.g., NEC, IEC, or VDE standards) and use certified components. After installation, perform visual inspections and electrical tests such as insulation resistance and functional checks of protective devices before powering on. Proper labeling and documentation facilitate future maintenance and upgrades.

By following these guidelines, a concealed distribution box can be both safe and visually unobtrusive, while remaining fully functional and compliant with electrical standards.

Article Content

A Complete Guide to NEC Article 314 on Electrical Boxes and Conduit

NEC Article 314 establishes requirements for the installation and use of electrical boxes, conduit bodies, fittings, and handhole enclosures.

Concealed DB Fixing Step-by-Step | Wall Concealed Electrical Box ...

Concealed DB fixing full guide — tools, materials, step-by-step installation & finishing tips. Perfect for electricians & DIYers. Subscribe for more electrical tutorials.

Concealed DB Box: A Comprehensive Review and Guide for

Whether you are a homeowner or an electrician, understanding how to install, use, and maintain a concealed DB box is crucial for a safe and efficient electrical setup.

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

A Complete Guide to Concealed PVC Boxes: Benefits, Uses, and ...

In this guide, we will explore what a concealed PVC box is, its benefits, uses, and installation process to help you make the right choice for your electrical projects.

Concealed Electrical Wiring Installation Guide

Laying electrical conduits in the slab before concrete is poured. 2. Laying electrical conduits in walls after brickwork is completed but before plastering. 3. Installing switch back boxes before plastering. 4.

Method Statement for Installation of Electrical Conduit and Boxes

The purpose of generating this method statement is to define the procedure for Installation of Electrical Conduit and boxes through guidelines contained herein to ensure that the job execution

How to Install a Cable Distribution Box Safely and Correctly?

This article provides a detailed overview of the entire process of installing a distribution box, from pre-installation preparation to post-installation maintenance, and summarizes common

Method Statement for Installation & Testing of Electrical Distribution ...

Examine the location to receive Distribution Board, for compliance with requirements for installation tolerances and clearances and after installation for periodic service as specified in the

The Definitive Guide of Concealed Conduit Wiring 2024

When it comes to electrical installations, concealed conduit wiring should be a good choice for safety and aesthetics factors. Concealed conduit wiring involves the installation of

The installation requirements for the distribution box

A distribution box is the heart of any electrical system. It takes the incoming power and safely distributes it to different circuits throughout your

EEGS-COVER.PDF

Where items of equipment are interconnected to form an integral part of the complete electrical installation, their characteristics of performance and capacities shall be so matched as to give safe,

Concealed Conduit Wiring System: A Clever Solution for Tidier and

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

The concealed conduit wiring system is a method of electrical installation where the cables are concealed within the walls. It provides a safer and more aesthetically pleasing solution for

Distribution Box Guide: Types, Components & Solutions

Understand distribution boxes (DB boxes) in 5 minutes. Learn about types, components, functions, and uses. Find the perfect DB box for your needs.

The Complete Guide to Distribution Box: Installation, Types & More

Quality distribution boxes represent a wise investment that pays dividends through improved safety, reduced maintenance costs, and enhanced system flexibility. As electrical demands

Concealed PVC Conduit Installation Guide

This document outlines the method statement for installing concealed PVC conduit and ducts under system formwork during construction of RC walls and slabs. Key steps include identifying locations of

Steps in Installing Concealed Wiring at Home

The back boxes need to be fixed to the concealed wiring setup before the plastering is done. Similarly, distribution boards (DPs) are accessories

Electrical Concealed Boxes & Boards Manufactured by

Give your switches and socket a reliable companion using Pressfit''s Concealed Boxes. We manufacture concealed boxes & boards in a variety of designs,

Size determination, installation method and wiring mode of distribution ...

The distribution box is the central hub of the home circuit and the general control of our daily power consumption. It is an indispensable electrical equipment. If there are some potential safety hazards,

Related Video Reference

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

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Contact Us

Continue your research online:

Website: https://alfa-pro.co.za
Technical inquiry: https://alfa-pro.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved