

Requirements for photovoltaic cable tray installation



Overview

Safe and NEC Compliant Use of PV Racking as Cable Tray For installers, there are a few items to consider for proper installation with respect to the certifi.

Key Takeaways

PV cable trays can be installed outdoors for both PV source and PV output circuits, provided cables are properly supported and secured according to NEC 690.31(C)(2). Key Installation Requirements

Outdoor Suitability: Cable trays for PV systems are permitted in outdoor locations for PV source circuits (between modules and combiner boxes) and PV output circuits (between combiner boxes and inverters) even if the cables are not specifically rated for cable tray use, as long as they are listed as PV wire . Support and Securing Intervals:

- Cables must be supported at intervals not exceeding 12 inches (300 mm) along the tray .
- Cables must be secured at intervals not exceeding 4.5 feet (1.4 m) to prevent movement and maintain proper alignment . Cable Tray Design Considerations:
- Ladder-style trays are commonly used, with rung spacing between 6 and 18 inches, typically 6-12 inches for PV applications .

- Ventilated or solid-bottom trays can be selected depending on environmental exposure and heat dissipation needs .
- Material selection (aluminum, steel, or coated finishes) should consider corrosion resistance and mechanical strength for outdoor conditions . Conductor Types and Sizes:
- Single-conductor PV wire of any size can be installed in cable trays outdoors .
- For ground-mounted PV systems, PV wire smaller than #1/0 AWG is permitted in trays, even if outside the scope of traditional TC ratings . Physical Protection:
- Cable trays provide superior protection against physical damage compared to direct burial or unsupported runs .
- Clips or fasteners should be installed within 12 inches of conductor entry points and spaced according to manufacturer instructions to prevent conductor lift . Compliance Notes:
- NEC 690.31(C)(2) governs the use of cable trays for PV source and output circuits.
- Ensure that all installations meet local AHJ interpretations and follow manufacturer guidelines for tray fill, support, and environmental exposure . By following these requirements, PV cable tray installations will be safe, code-compliant, and durable for outdoor photovoltaic systems.

Article Content

Safe and NEC Compliant Use of PV Racking as Cable Tray

For installers, there are a few items to consider for proper installation with respect to the certification: clip installation for conductor

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A practical guide to solar cable tray planning for PV mounting structures, outdoor exposure, and maintainable cable routes.

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This content compares the cost and durability of common plastic cable ties versus metallic and high-grade polymer alternatives and

Solar Cable Tray

Solar Cable Tray from MP Husky is designed to meet the unique requirements of the solar industry. Providing cable protection, cable

690.31 (C) (2) Cable Tray.

2014 Code Language: 690.31 (C) (2) Cable Tray. PV source circuits and PV output circuits using single-conductor cable listed and

Cable Tray SHIB NAL

The type of cable tray (e.g., solid, ventilated), ampacity (current-carrying limit) requirements, and the type and voltage rating of cable

690.31 (C) (2) Cable Tray.

2020 Code Language: 690.31 (C) (2) Cable Tray. Single-conductor PV wire or cable of all sizes or distributed generation (DG) cable

690.31(C)(1) Cable Trays in PV Systems

stalling these cables in cable trays. On the other hand, the NEC permits the use of USE-2 or PV wire in PV systems (exposed,

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Cable Tray Technical Guide A practical guide to product selection

A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a

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Cable Tray Installation Method Statement

This document provides a method statement for installing cable trays and laying DC/AC cables for the 1.2MW Al Dahra PV project. It

NEMA Standards Publication VE 2-2006

For Cable Tray Installers—This publication is intended as a practical guide for the proper installation of cable tray systems. Cable

Solar Cable Management for PV Systems

Discover the best cable management practices for solar panel longevity. Learn tips from Solar Rains to protect & optimize your

64-4-* Wiring methods for solar photovoltaic systems

64-210 9) 64-210 6) 64-210 3) Table 19 (*) Conductor type RPV is not permitted for cable tray installation, unless marked (TC) or

TECHNICAL SERVICES DEPARTMENT

NEC 690.31(C)(2) permits single conductor PV Wire with or without a "CT" marking to be installed in cable trays in outdoor locations.

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