

Lightning Protection for Non-Metallic Cable Trays



Article Overview

Non-metallic cable trays require specialized lightning protection through bonding, grounding, and overhead shielding to comply with NFPA 780 and IEC 62305 standards.

Key Considerations

Non-metallic cable trays, such as those made from fiberglass or PVC, are inherently non-conductive and cannot carry lightning currents directly. Therefore, they cannot serve as a grounding path like metallic trays. Lightning protection for these trays focuses on external measures to prevent direct strikes and minimize induced surges in the cables they carry .

Grounding and Bonding

- While non-metallic trays themselves are non-conductive, any metallic components (supports, fasteners, or covers) should be bonded to the building's grounding system to provide a path for lightning currents .
- Overhead cable systems or metallic shielding can be installed above non-metallic trays to intercept lightning strikes and safely divert currents to ground .
- Surge protection devices (SPDs) can be installed at cable entry points to protect sensitive equipment from transient overvoltages caused by nearby lightning strikes .

Shielding and Separation...

Article Content

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The Basics of Isolated Down Conductors for Lightning Protection

When it comes to the basics of lightning protection, two main systems are generally implemented: Isolated or non

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Cable Tray Technical Guide A practical guide to product selection and ...

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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Installing Lightning Protection Systems

Some people falsely believe that metal roofs can increase the risk of a lightning strike. Metal roofs are no more

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TECHNICAL HANDBOOK

All lightning protection materials should conform to EN 50164-1 and EN 50164-2 Lightning Protection Components requirements. The

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Non-metallic cable trays – performance at elevated temperatures

Non-metallic cable trays – performance at elevated temperatures Eaton's B-Line series fiberglass cable tray systems provide an an

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Cable Tray

Cable Tray Cable trays are mechanical support systems that provide a rigid structural system for electrical cables, raceways, and

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Non-Metallic Cable Trays: Benefits, Costs, and Best Uses

A non-metallic cable tray is a type of support structure designed to manage and protect cabling in various environments. Made from

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Nonmetallic

Nonmetallic cable tray systems have been tested and proven in the harsh environment of the offshore oil and gas industry. This tray

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Nonmetallic

Nonmetallic - Cable tray systems Drop outs and barrier strips Specially designed ladder drop outs provide a rounded surface with

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Practices For Grounding and Bonding of Cable Trays

Metallic cable trays must be grounded and can serve as an equipment grounding conductor if the metal cross-sectional area meets

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Safely Installing, Maintaining and Inspecting Cable Trays

Cable trays are not raceways, but they are treated as a structural component of a facility's electrical system. Cable trays are a part of

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ITER Electrical Design Handbook Earthing and Lightning Protection

Every cable tray will have a protection conductor electrically bonded to the tray, running all along the one. This conductor shall be

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Nonmetallic Cable Tray Systems | PDF Catalogues | ABB

Browse our nonmetallic fiberglass cable tray systems offering superior resistance to corrosive conditions in petroleum,

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NEC Article 392: Cable Tray Systems

It provides rules for acceptable wiring methods that can be installed in cable trays, including conditions for use. It addresses uses

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Types of Cable Typically Used in Cable Tray

Communication Cables – types CMP, CMR, CMG, CM, CMX Fire Alarm Cables – type NPLF – NPLFP, FPL-FPLP (CI) Type TC –

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Cable Tray Technical Guide A practical guide to product selection and ...

In designing supports for a cable tray system, consideration should be given to the loads associated with future cable additions and

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Equipotential Bonding: Connecting Exposed Conductive Metal

Equipotential bonding: Connect and protect DEHN's equipotential bonding solutions create a uniform electrical potential across each

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Cable Tray Technical Guide A practical guide to product selection and ...

SOLID-BOTTOM CABLE TRAY Providing additional cable protection, solid-bottom cable tray is sometimes preferred to support and

Feb 26, 2026

IEC 62305 Lightning Protection — Complete Guide

Complete IEC 62305 lightning protection guide covering risk assessment (Part 2), LPS classes I-IV, rolling sphere

Oct 16, 2025

Equipment Grounding Conductors for Cable Tray Systems

The intent of this article is to review grounding practices for cable tray wiring systems. The Equipment Grounding Conductors are the

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Practice of Lightning Protection: Risk Assessment, External Protection ...

Details of protection of electrical and electronic installations inside a structure are presented, including the choice and

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Non-metallic Cable Trays | Products & Suppliers | GlobalSpec

Find Non-metallic Cable Trays related suppliers, manufacturers, products and specifications on GlobalSpec - a trusted source of Non

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LMrev2005_Final.book

Chapter 2 of this manual specifies requirements for surge and transient protection, lightning protection, earth electrode system

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Cable Tray Grounding: Power, Instrumentation, and

Where cable tray systems contain only signal and communication circuits that operate at low energy levels, power grounding per

Feb 13, 2026

LPI-175 / 2023 Edition

General Industry Information The Lightning Protection Institute is a nationwide not-for-profit organization founded in 1955 to promote

Nov 11, 2025

TECHNICAL HANDBOOK

The lightning class determines the minimum lightning protection level (LPL) that is used within the lightning protection design.

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Cable Tray Grounding: Electrical and Non-Power Conductors

NFPA780, Standard for the Installation of Lightning Protection Systems, provides criteria for building lightning

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Practices for grounding and bonding of cable trays

Metallic Cable Trays Cable tray may be used as the Equipment Grounding Conductor (EGC) in any installation where qualified

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Practices for grounding and bonding of cable trays

For such installations, it is best to use an insulated conductor and to remove the insulation where bonding connections are made to

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Cable Tray Standards | Cable Management | Metsec

6 Classification 6.1 According to material 6.1.1 Metsec cable tray systems are metallic system components 6.2 According to

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Lightning Protection Application Guide

The need for certified lightning protection is increasing, and this guide looks at the requirements that support a safer, code-compliant

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Technical Specification

Metallic cable containment system and their supporting metallic structures are to be bonded to the earthing system. Bonding

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PCIC Europe Authors Kit

I. INTRODUCTION Traditionally cable support systems such as cable trays and ladders have been made of metals. Over the past

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