

Article Overview

For cross-road pipeline applications, cable trays must be strong, durable, and designed for long spans with proper support to ensure safety and reliability.

Key Considerations

1. **Material Selection:** Cable trays for outdoor and cross-road installations should be made from hot-dip galvanized steel, stainless steel, aluminum, or fiber-reinforced composites (FRP/GRP) to resist corrosion and environmental stress . Concrete cable troughs with reinforced walls are also an option for heavy-duty applications . 2. **Long-Span Design:** Crossing roads often requires spans of 20 to 40 feet or more. The support span directly affects tray strength, so the tray must be rated for the chosen distance between supports. Only one splice plate should be placed per support span to maintain structural integrity . Matching tray length to support span helps control splice locations and ensures stability. 3. **Load Capacity and Tray Type:** Choose trays based on the weight of cables and pipelines. Options include perforated trays, ladder trays, and solid-bottom troughs. Ladder trays are ideal for heavier loads, while perforated trays allow ventilation and reduce overheating . Concrete or composite troughs provide additional lateral stability for pipelines and utilities . 4. **Installation and Safety:**

- o Use splice plates and brackets to secure tray sections.
 - o Ensure compliance with NEMA VE-1/VE-2 standards and local electrical codes (NEC or CEC) .
 - o For concrete or composite troughs, covers should be removable and lockable for maintenance access .
 - o Consider thermal expansion and contraction for outdoor trays to prevent structural stress .
5. **Flexibility and Maintenance:** Cable trays should allow easy access for cable ties, clamps, and future modifications. Open or perforated designs facilitate inspection and maintenance while reducing the risk of overheating .

Recommended Solutions

- o Steel or stainless steel ladder trays for heavy-duty pipelines.
 - o Galvanized or FRP/GRP trays for corrosion resistance in outdoor environments.
 - o Concrete cable troughs for high-load, permanent installations with secure covers.
 - o Modular systems with adjustable brackets for alignment over roads and uneven terrain .
- By carefully selecting the tray type, material, support span, and installation method, cross-road pipeline cable trays can provide a safe, durable, and maintainable solution for industrial and infrastructure projects.

Abstract Natural gas pipeline aerial crossing (NGPAC), also called natural gas pipeline bridge, is an important structure for gas

Cable trays for cross-road pipelines

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Heavy duty cable trays and cable ladders are manufactured from pre-galvanized, electro-galvanized, or hot-dipped galvanized sheet

1. Route Planning and Layout Principles Coordinate with Building Structure: Cable tray routing should align

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1. General The pipeway conveys all main process lines connecting distant pieces of equipment, relief and blowdown headers, all

A crossover bridge is for either rooftop or land site application providing an avenue for foot traffic, while protecting cable trays and

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NEMA VE 1-2017 Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules

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