

RIVO MULTITRADE OPTICAL SYSTEMS

How are outdoor cable trays laid



Overview

These cable tray systems serve as efficient alternatives to traditional wireways and electrical conduits, which fully enclose cables.

Key Takeaways

Outdoor cable trays are installed by selecting the appropriate tray type and material, mounting supports, securing trays, routing cables, and ensuring compliance with environmental and safety standards. Material and Tray Selection

For outdoor installations, material choice is critical due to exposure to moisture, UV radiation, and corrosive elements. Common materials include hot-dip galvanized steel for general outdoor use, 316 stainless steel for harsh marine or chemical environments, and fiberglass-reinforced plastic (FRP) for chemical resistance and non-conductivity . The ladder-type tray is preferred for heavy power cables because it provides strength, ventilation, and long support spans, while solid-bottom or trough trays protect sensitive cables from debris and moisture .

Support Structures

Cable trays are mounted using trapeze hangers, wall brackets, or center-span supports anchored to structural elements like walls, poles, or concrete pads . Supports are typically spaced according to the tray type and load, ensuring the tray remains level and can handle the weight of cables and environmental loads such as wind or snow.

Installation Steps

- **Planning the Route:** Determine the cable path, avoiding prohibited areas like hoistways, and account for bends, risers, and branches using fittings such as tees, horizontal and vertical bends, and reducers .
- **Mounting Supports:** Install hangers or brackets at calculated intervals to support the tray along the entire route.
- **Assembling Trays:** Connect straight sections using splice plates and secure with bolts. Install bends, tees, and risers as needed to navigate obstacles.
- **Securing Cables:** Lay cables in the tray, maintaining fill limits (typically 40% for power cables, 50% for control cables) and separating high-power and low-power lines to prevent electromagnetic interference .
- **Covers and Hold-Downs:** Install covers if required for protection against debris, moisture, or unauthorized access, and secure them with hold-down clamps.
- **Grounding and Bonding:** Metallic trays must be grounded according to NEC standards to ensure safety and prevent electrical hazards .

Environmental Considerations

- Use UV-resistant cables for sunlight exposure.
- Allow for thermal expansion with expansion splice plates.
- Consider corrosion resistance based on climate, humidity, and chemical exposure .
- Maintain vertical clearance (at least 12 inches) for maintenance access .

Compliance and Safety

Follow NEC Article 392 for installation rules, including cable type restrictions, fill limits, separation, grounding, and prohibited areas . Proper installation ensures long-term reliability, reduces maintenance, and prevents hazards like overheating, fire, or mechanical failure. By carefully selecting materials, planning the route, and following proper support and grounding practices, outdoor cable trays can be laid efficiently and safely, providing a durable and accessible pathway for electrical and communication cables.

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