Cable tray installation in large shopping malls

Overview

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

Key Takeaways

Proper installation of cable tray supports in shopping malls ensures safe, organized, and reliable power and communication distribution while accommodating future expansion.Planning and Coordination

Before installation, obtain approved shop drawings showing the cable tray route, dimensions, support system, installation height, and the number of layers for different systems (e.g., electrical circuits and structured cabling) to avoid interference between electrical and telecommunication signals . Check for clashes with other services such as HVAC ducts, fire-fighting pipes, and drainage systems, and resolve any conflicts through coordination meetings with engineers .

Support Design and Spacing

Cable tray supports must provide sufficient strength and load capacity to handle the weight of installed cables and potential future additions . Typical support spacing ranges from 1.5 to 3 meters, depending on tray type and load . Supports should maintain a minimum clearance of 300 mm above or between installed systems to allow for cable installation and maintenance . Ensure electrical continuity by bonding the tray to the building structure at intervals of approximately 18 meters .

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Installation Procedure
• Establish Elevation: Determine the required height from the floor to the bottom of the tray and mark a level line using a laser or nylon string .

• Select Tray Type: Choose ladder, perforated, or solid-bottom trays based on airflow, load, and cable type .

• Mount Supports: Use appropriate clamps, brackets, or hangers for wall, ceiling, or floor mounting. Avoid cutting or drilling structural members without approval .

• Align and Secure Trays: Ensure trays are straight, level, and properly connected using fittings and connectors .

• Cable Laying: Organize cables by voltage and function, leaving slack for expansion or future adjustments. Maintain vertical separation between power and communication cables to prevent interference .
Safety and Maintenance

Workers should be trained in proper handling, wear protective gear, and follow safety practices during installation . Cable trays should be accessible for inspection and maintenance, and materials should be stored properly to prevent damage or corrosion . Modular designs facilitate easier repairs and future modifications .

Materials and Load Considerations

Select cable trays and supports according to load requirements, including anticipated future cable additions . Ensure trays are strong, stiff, and stable to prevent sagging or damage under heavy loads, which is especially important in high-traffic areas like shopping malls . By following these guidelines, shopping malls can achieve a safe, reliable, and maintainable cable tray system that supports both current and future electrical and communication needs.

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