

Number of cable trays for elevator doors

Article Overview

The number of cable trays for elevator doors depends on the total number, size, and type of cables, as well as the allowable fill of each tray according to NEC guidelines.

Determining Cable Tray Requirements

Cable trays are used to support and route elevator cables safely from the machine room to the elevator doors, including power, control, and signal cables . The number of trays required is not fixed; it depends on:

- o Cable quantity and size: Larger or more numerous cables may require multiple trays to avoid overfilling.
- o Tray type: Ladder, ventilated, or solid-bottom trays have different fill capacities. Ventilated trays allow better airflow and higher fill percentages .
- o Allowable fill: NEC Section 392 specifies that trays should generally not exceed 40-50% of their cross-sectional area to prevent overheating and mechanical stress .
- o Future expansion: Designers often plan for additional trays to accommodate future cable additions without overloading existing trays .

Practical Guidelines for Elevator Doors

- o Separate trays for power and control cables: To reduce electromagnetic interference, it is common to route high-voltage power cables in one tray and low-voltage control or signal cables in another .
- o Tray sizing: Calculate the total cross-sectional area of all cables and select trays that maintain the recommended fill percentage. If the total cable area exceeds the capacity of a single tray, additional trays are required .
- o Short runs to doors: For the short horizontal or vertical runs from the hoistway to the elevator doors, a single tray may suffice if cable volume is low. For multiple doors or high-speed elevators with many signal and power lines, multiple trays may be necessary .
- o Compliance and safety: Ensure trays are properly supported, secured, and rated for the weight of the cables. Overloading trays can lead to mechanical failure or electrical hazards .

Summary

There is no universal number of cable trays for elevator doors. Typically, one tray per cable type (power vs. control) is used for a single door, but multiple trays may be required for:

- o Multiple doors on the same floor
- o High-speed or high-capacity elevators
- o Future expansion needs The best approach is to calculate the total cable area, select trays according to NEC fill guidelines, and plan for separate trays for different cable types to ensure safety, compliance, and ease of

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maintenance .

Part II of Article 620 concerns conductors used in elevator work, and several important requirements are covered.

Where cable tray wiring systems with current carrying conductors are installed in a dust environment, ladder type cable trays should

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Not all cable trays are equivalent. The mechanical and electrical characteristics, tests, certifications, overall quality management,

B. Cable tray systems are defined to include, but are not limited to straight sections of [ladder type] [trough type] [solid bottom type]

The local trays indicate the support of one or several cables (in limited number) from the main cable tray to the electrical equipment

Cable Tray Systems Guide HUBBELL Hubbell Wiring Device-Kellems and Hubbell Premise Wiring are divisions of Hubbell

The design and cost of the cable tray is greatly affected by this designation. In order to determine the most appropriate and

Cable ladder is more commonly used where heavier cables need to be carried, but is more expensive. Apart from the

BUILDING ELEVATOR SYSTEMS For most people residing in urban cities, elevators have become an integral part of their daily life.

The appropriate size and number of cable trays depends directly on the number and size of conductors intended and the allowable

Often times the tray support system has been designed to serve as a number of purposes, resulting in a greater number of supports

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

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Cable trays are a part of

Elevators must operate safely and seamlessly. When buildings are designed, architects enlist the assistance of elevator specialists to

Calculate tray and ladder sizes by cable capacity with our IEC-compliant calculator for efficient and accurate electrical installations.

The final drawings for a cable tray wiring system may be completed and sent out for bid or construction more quickly

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