

Cold aisle dimensions for intelligent building server rooms

Article Overview

The standard cold aisle width is typically 1.2 meters (two floor tiles), with lengths up to 16 meters, and can be expanded or contained for improved cooling efficiency and equipment reliability.

Standard Dimensions

- o Width: The recommended cold aisle width is 1.2 meters, corresponding to two double floor tiles, which allows sufficient space for airflow and personnel access . For higher-density racks or additional service access, widths of 1.8 meters (three floor tiles) are sometimes used .
- o Length: Continuous rows of server cabinets should not exceed 16 meters in length. If one end of the aisle is closed or lacks a personnel exit, the maximum safe length is 6 meters to ensure proper access and evacuation .
- o Raised Floor Considerations: A minimum floor depth of 300 mm is recommended to accommodate perforated tiles for cold air delivery, cabling, and airflow management .

Cold Aisle Containment

- o Purpose: Containment systems enclose the cold aisle to direct the coldest air directly into server intakes, preventing mixing with hot exhaust air and maintaining uniform temperatures .
- o Configuration: Contained cold aisles typically include perforated floor tiles or side cooling units aligned with racks, and glass or modular doors at aisle ends to maintain pressure and airflow .
- o Benefits: Containment improves cooling efficiency, reduces energy consumption, prevents hotspots, and extends equipment lifespan by maintaining predictable thermal conditions .

Design Considerations

- o Ceiling Height: For ceilings above 3.7 meters, additional aisle width may be required to accommodate lifts and overhead systems such as lighting, fire detection, and suppression equipment .
- o Modularity and Scalability: Modern cold aisle containment systems are modular and expandable, allowing for flexible reconfiguration as server density or cooling requirements change .
- o Safety and Serviceability: Proper aisle planning ensures safe personnel access, efficient maintenance, and compliance with fire and building codes .

Summary

For intelligent building server rooms, a cold aisle width of 1.2-1.8 meters and a maximum length of 16 meters is standard, with containment systems recommended for high-efficiency cooling. Raised floors, modular doors, and careful planning of ceiling height and access points enhance airflow management, energy

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efficiency, and equipment reliability, making these dimensions and containment strategies essential for modern data center design .

Training and Awareness The hot and cold aisle strategy is a proven method for improving cooling efficiency and reducing energy

The server room serves as the backbone of a corporate IT infrastructure. An optimized server room design can save

Cold aisle containment systems are designed to eliminate hot-spots within server racks, server rooms and datacentres. These hot

Improve server room layout with hot/cold aisle racks, raised floors, and cleaner cable paths to manage heat and

In this guide, we'll break down how hot aisle and cold aisle configurations work, what

SERVER ROOM ENERGY MANAGEMENT CHECKLIST The table below summarises the actions which have been found to

Hot / cold aisle The standard practice in data centers is to arrange cabinets into hot / cold aisles. The cabinets are positioned facing

The hot aisle / cold aisle configuration conserves energy and lowers cooling costs by managing air flow. This is

According to the ANSI/TIA/EIA-942-A standard, the recommended width for a cold aisle is 1,2 meters, which typically corresponds to

Are you interested in creating the most energy efficient design for your Data Center Server Room? Consider the Hot

SERVER ROOM ENERGY EFFICIENCY This guide is one of a suite of documents that aims to provide guidance on ICT energy

This solution captures many requirements typically placed on the building shell and places it closer to the equipment. This includes

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How aisle containment works Aisle containment is a physical means of separating hot

This article explores design considerations, components, cooling strategies, airflow management, monitoring, and

In its simplest form, hot/cold aisle data center design involves lining up server racks in alternating rows, with cold air

Containment solutions are a cost-effective method of improving server room energy efficiency. There are multiple methods and

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