

Article Overview

The recommended ambient temperature for cold aisles in data centers is typically between 18°C and 27°C (64.4°F-80.6°F), with a preferred range of 20°C-24°C (68°F-75°F) for optimal reliability and energy efficiency.

Recommended Temperature Ranges

Cold aisles are the areas in a data center where IT equipment intakes cool air, and they are designed to maintain the lowest air temperatures in the facility . According to ASHRAE guidelines, the recommended intake air temperature for servers and IT equipment is 18°C-27°C, with a narrower preferred range of 20°C-24°C to balance reliability and energy efficiency . The allowable range can extend slightly wider, but temperatures outside this range may compromise equipment performance or lifespan .

Practical Considerations

- o **Airflow Management:** Cold aisle temperatures depend on proper airflow design. Perforated floor tiles should be aligned with rack intakes, and any openings in the raised floor or walls should be sealed to prevent hot air recirculation .
- o **Sensor Placement:** Temperature sensors should be installed at the front of IT racks to accurately monitor intake air, as mid-aisle or return air temperatures do not reflect the actual cooling conditions experienced by the equipment .
- o **High-Density Racks:** In high-density environments, a more restrictive temperature range of 18°C-22°C is recommended to prevent hotspots and ensure uniform cooling .

Additional Guidelines

- o **Humidity Control:** Maintain relative humidity between 45%-55% to reduce risks of electrostatic discharge and condensation .
- o **Monitoring and Alerts:** Use sensors and software tools to track temperature and humidity, with early warnings at 40%-60% RH and critical alerts at 30%-70% RH .
- o **Energy Efficiency:** Operating at the higher end of the recommended range (closer to 27°C) can save energy, but only if airflow and monitoring are well-managed to avoid hotspots . Maintaining cold aisle temperatures within these ranges ensures optimal IT equipment performance, reduces the risk of thermal incidents, and supports energy-efficient data center operation.



Cold aisle computer room ambient temperature

wer temperature and humidity extremes than the cold aisles or ballroom areas. A much smaller volume of cooling air is provided to

ASHRAE's guidelines change when new research surfaces about data center conditions, mainly involving the

Implementation of both hot and cold aisle containment does not reduce the volumetric flow

Optimize your data center temperature with ASHRAE guidelines, temperature sensors, and environmental

Hot Aisle Room Ambient Average Front Temperature Average Back Temperature e of the rack is affected over time. The two

Ambient temperature is an important factor in maintaining computer hardware. Learn how to measure it and why it is

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

Legacy Cooling and the End of Raised Floor For decades, computer rooms and data centers utilized raised floor

At home the context is different, but the fundamentals don't change: Try to keep the room

The recommended temperature and humidity range is what ASHRAE considers to be optimal for the equipment in

Cold aisle containment encloses the cold aisle completely, while hot aisle containment captures exhaust air and directs to the

What is the Purpose of a Hot Aisle and Cold Aisle Arrangement? The separation of cool and hot air creates a controlled environment

Hot aisle containment systems isolate the hot aisle using a similar enclosure system to that of a cold aisle with a sealed

Background Info: Ambient server room monitoring or data center monitoring is the environmental monitoring of the room for its

Ideal temperature and humidity ranges for computers and data centers, limits per component, and monitoring and cooling tips.



Cold aisle computer room ambient temperature

They house computer systems and associated components such as telecommunications and storage systems.

Web: <https://www.millstraining.co.za>

