

National Standards for Cold Aisles in Computer Rooms



Overview

Refer to the latest ASHRAE publication, "Thermal Guidelines for Data Processing Environments", dated 2011. This document can be purchased online at <https://www.ashrae.org/TechnicalResourcesLibrary/WhitePaper1>. Special thanks also to Dave Kelley (Emerson), Paul Artman (Lenovo), John Groenewold (Chase), William Brodsky (IBM), Roger Schmidt (IBM), Terry Rodgers (Primary Integration Solutions), Tom Davidson (DLB Associates), and Jason. ing effectiveness, and improve overall operational performance. Below are some key takeaways, rationale, and requirements for im date the evolving needs & configurations of colocation le containment is a crucial strategy in data center management. A dedicated section outlines a detailed procedure for assessing the overall cooling health of the data center and optimizing. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use. Efficient airflow management in data centers relies heavily on proper Hot Aisle and Cold Aisle configurations. To maintain thermal performance, equipment accessibility, and safety, it's essential to follow key spatial guidelines. Hot exhaust air is directed specifically toward cooling units via ceiling plenums or vertical ducts, making it the most energy-efficient solution for high-density.

Article Content

Apr 11, 2026

Maximize data center cooling efficiency by controlling airflow

Data center cooling efficiency relies on the use of proper air-cooling methods that involve hot and cold aisle placement

Oct 18, 2025

Best Practices Guide for Energy-Efficient Data Center Design

Hot aisle/cold aisle configurations can be served by overhead or under-floor air distribution systems. When an overhead system is

May 16, 2026

GUIDE TO ICT – SERVER ROOM ENERGY EFFICIEN

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

Feb 18, 2026

Hot Aisle vs Cold Aisle Containment Explained (Data Center Cooling ...

Learn the difference between Computer Room Air Conditioners and Computer Room Air Handlers, including how DX

Dec 19, 2025

Data Center Design: Hot Aisle & Cold Aisle – Length and Width ...

Proper aisle planning isn't just about airflow—it's about optimizing safety, serviceability, and system efficiency. By adhering to these

Jun 20, 2026

ASHRAE Data Center Temperature & Humidity Guidelines

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

Apr 14, 2026

Best Practices Guide for Energy-Efficient Data Center Design

As the name implies, the data center equipment is laid out in rows of racks with alternating cold (rack air intake side) and hot (rack air

Jul 31, 2025

Hot and Cold Aisle Containment: What You Need to Know

How aisle containment works Aisle containment is a physical means of separating hot (exhaust) and cold (supply) air.

Dec 01, 2025

The pros and cons of hot and cold aisle containment

With data centres and computer server rooms becoming larger and more numerous companies are often faced with a decision: what

Dec 08, 2025

Aisle Containment Systems for Hot & Cold Aisle Solutions

Cool Shield Aisle containment solutions reduces server row temperatures in active data centers. Learn more about the benefits of hot

Oct 11, 2025

Hot & Cold Aisle Containment: Implementation Guide 2026

Learn how to implement hot and cold aisle containment in existing data centers — HAC vs CAC comparison, PUE

Apr 01, 2026

Equipment Thermal Guidelines for Data Processing Environments

The minimum humidity level for Classes A1, A2, A3, and A4 is the higher (more moisture) of the -12°C dew point and the 8% rh.

Apr 25, 2026

ASHRAE TC9.9 Data Center Power Equipment Thermal Guidelines

ategies orient the IT racks in what is called a hot aisle/cold aisle layout. Cold aisles are formed by the space between the front faces

Aug 08, 2025

Document Name

Fully contained cold aisles need fewer sensors since the temperature distribution is much more uniform throughout

Oct 11, 2025

FOCUSED COOLING USING COLD AISLE CONTAINMENT

As an addition to a conventional precision cooling system, cold aisle containment consistently separates cold and warm areas

May 20, 2026

Hot Aisle vs Cold Aisle in Data Centers: Technical Impact, ROI, and ...

What Are Hot Aisle / Cold Aisle Configurations? Data centers are ovens if left unmanaged. Hundreds, sometimes

Oct 11, 2025

General guidelines for data centers

Equipment layout and air delivery paths The hot-aisle, cold-aisle arrangement that is explained in the ASHRAE publication, "Thermal

Jan 06, 2026

Infrastructure Standard for Telecommunications Spaces

-Removed operational information not required for building planning and design for publishing of the Standard on the TIL. Information

Mar 03, 2026

Move to a Hot Aisle/Cold Aisle Layout

A Time-tested Technique The hot aisle /cold aisle data center layout was originated by IBM in 1992 and it is one of the oldest ways to

Feb 25, 2026

General guidelines for data centers

In the following figure, racks within the data center are arranged such that there are cold aisles and hot aisles. The cold aisle consists

Apr 29, 2026

Explore hot and cold aisle containment for your data center

Hot and cold aisle containment can help you maintain the best air flow, temperature and humidity in the data center to

Dec 31, 2025

Hot vs Cold Aisle Containment: 40% Cooling Savings

Discover how hot and cold aisle containment revolutionizes cooling efficiency, cuts energy costs by up to 40%, and

Dec 14, 2025

A DEEP DIVE INTO THE WORLD OF HOT & COLD AISLE

OPERATIONAL ASPECTS OF HOT AND COLD AISLE CONTAINMENT ZONES Airflow Management: Utilize perforated tiles,

Apr 24, 2026

GUIDE TO ICT – SERVER ROOM ENERGY EFFICIEN

Cold aisle containment with hot air return through the ceiling to the Computer Room Air-Conditioning unit (CRAC). Outside aisles

Feb 28, 2026

A DEEP DIVE INTO THE WORLD OF HOT & COLD AISLE

AISLE CONTAINMENT Aisle containment is a crucial strategy in data center management. It involves the use of physical barriers or

May 16, 2026

Aisle Containment May Hinder Server Room Fire Protection Systems

Server rooms need strong cooling and fire protection systems. QRFS examines aisle containment systems and how

Contact Us

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