

Construction of large-scale data centers



AI Overview

Large-scale data center construction involves specialized planning, modular design, robust power and cooling systems, and phased workflows to support hyperscale computing and AI workloads.

Overview

Building a large-scale data center is a highly specialized process that differs from standard commercial construction due to its critical uptime requirements, energy intensity, and complex infrastructure. These facilities house servers, storage, networking equipment, and supporting systems, requiring continuous power, precise cooling, and high security . Hyperscale data centers, in particular, are designed for cloud providers and AI workloads, often spanning hundreds of thousands of square feet and supporting tens to hundreds of megawatts of IT load .

Key Types of Data Centers

- **Hyperscale:** Massive, multi-building facilities for cloud and AI workloads; load ranges from 20–100+ MW; modular and scalable design .
- **Colocation:** Shared facilities where multiple tenants lease space; load ranges 1–20 MW; emphasizes SLA-driven performance .
- **Enterprise:** Single-organization facilities with tailored compliance and security; load ranges 0.5–10 MW .
- **Edge:** Smaller, localized centers for low-latency applications; load ranges 50 kW–1 MW; modular and fast to deploy .

Construction Lifecycle

Article Content

The Complete Guide to Data Centre Construction:

Explore the data centre construction process. Learn about timelines, best practices, and how to build efficient data

Data center construction guide: Costs, timelines, and equipment

Review the costs, timelines, and essential equipment in this data center construction guide. Plus, see the best way to

How to Design and Build a Data Center

A data center is the technological hub of modern enterprise operations. The data center provides the critical IT

Data Center Construction: Costs, Steps & Best Practices

Learn data center construction from planning to build—costs, timelines, risks, and best practices to deliver scalable,

Data Center Construction Statistics and Facts (2026)

The economic impacts of a typical large data center on local communities are significant during both the construction

New Data Center Developments: November 2025

The demand for new data centers shows no signs of slowing. With new projects announced each week, keeping track

Why the United States Is Building Data Centers at Unprecedented Scale

Data centers have moved from niche digital infrastructure to assets central to the United States' economy, security,

10 Data Center Construction Companies to Watch in 2026

From Atlanta, Georgia, Holder Construction specializes in large, complex projects including data centers, hospitals, and corporate

Data Center Construction: Costs, Timeline, and Delivery Steps

Data center construction builds secure facilities for servers, power, and cooling systems. Get costs, timelines, key

Data Center Construction Guide | Broadstaff

Learn the data center construction phases, cost drivers, timeline, key roles, and staffing needs from site prep through

Building a Data Center: An In-Depth Guide to Construction

Building a data center is the construction process of a facility to house computer systems, storage, and IT equipment for data handling.

Data Center Design and Construction: A Complete Guide

Learn how to design and build a data center with this 8-step guide. Explore key components, best practices & requirements for a

5GW Data Center Buildout Requires Novel Engineering

Regardless of these issues, large AI companies, and the engineers they hire, are going full steam ahead on giant

5 Largest Data Center Construction Projects in 2025

Discover the 5 largest data center construction projects in the U.S. for 2025, plus insights on market growth, emerging

Largest Data Centers around the world with over 1GW Capacity Under ...

Here are the top 7 largest data centers currently being planned or under construction—each aiming to exceed 1

Data Center Construction Guide | TrueLook

Learn how hyperscale data center construction works and why jobsite visibility is important to these projects.

Data Center Construction: Costs, Timeline, and Delivery Steps

Data center construction delivers purpose-built facilities that support large-scale IT infrastructure. These capital

Building a Data Center: 10 Powerful Steps for Success 2025

During peak construction, large data center sites can host over 1,000 workers simultaneously—a carefully

Top 20 Data Center Construction Contractors in 2026

Ranked list of the top 20 data center construction contractors in 2026 — who dominates, how they got there, and how

Contact Us

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