



Managing Risk Across the Data Center Lifecycle: **Design, Build, Commission**

Data centers don't get a settling-in period. Once they become operational, owners and operators expect stable power, consistent cooling, and reliable uptime from day one.

Design documents and construction records play an important role in defining requirements and documenting what was installed. But because data centers depend on systems that must operate together in real conditions, teams also need independent technical review, field testing, and commissioning to confirm performance under full load and during failover transfers.

The cost of downtime adds urgency. Gartner's widely cited benchmark estimates the average cost of IT downtime at about \$5,600 per minute, while more recent research suggests the real cost is often \$9,000 or more per minute, depending on industry and company size.

Design: Catch Issues Early

The design phase sets expectations for redundancy, cooling strategy, enclosure performance, and operational requirements. Early technical reviews and

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site assessments can help teams identify coordination gaps, validate assumptions, and avoid costly rework once construction starts.

Intertek supports the design phase with mechanical, electrical, building science, environmental, and information and communications technology evaluations. Procurement planning often begins during design, especially for long-lead equipment and critical systems. Aligning supplier qualification, submittal requirements, and performance documentation with the basis of design can reduce schedule risk once construction begins. Vendor assurance and technical



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review can also help teams evaluate suppliers for quality, capability, and safety before construction begins.

Design-phase support can include:

- Conducting engineering and peer review for mechanical, electrical, HVAC-R, and building systems
- Providing building enclosure consulting for air, water, thermal, and structural performance
- Supporting procurement planning for long-lead equipment through vendor assurance and submittal review

Build: Validate What Gets Installed

Field conditions, schedule pressure, and trade coordination can affect performance quickly. Construction materials testing and building envelope consulting help confirm durability, support moisture management, and verify that key assemblies perform as intended before systems become buried behind walls.

Intertek also supports construction teams with field testing, inspections, enclosure verification, mechanical system checks, nondestructive examination, and ICT validation. Identifying issues during construction helps teams address them early, while access remains available and before systems are fully integrated.

Build-phase support can include:

- Testing and inspecting construction materials and building products
- Verifying enclosure performance through air infiltration and water penetration testing

Commission: Prove Readiness Before Operations Begin

Commissioning is where the facility has to perform as an integrated system. Rigorous testing proves readiness for 24/7 operation and provides documentation that

operations teams need once the building transitions from construction to continuous use.

Intertek validates integrated performance across electrical, mechanical, enclosure, ICT, cybersecurity, and environmental systems. Commissioning support can include functional testing under load, power quality testing, building enclosure commissioning (BECx), and turnover documentation.

Commissioning support can include:

- Confirming electrical and mechanical system performance through functional testing under load
- Assessing power quality, including harmonics, voltage stability, and load behavior

Intertek Data Center Solutions

We have launched new Data Center Solutions resources, including a comprehensive webpage and a service brochure that outlines end-to-end support across design, build, and commissioning.

The Data Center Services brochure provides an overview of Intertek's support across design, construction, and commissioning. It also highlights Intertek's ATIC advantage: Assurance, Testing, Inspection, and Certification solutions that support stronger, more resilient, and more sustainable data center projects. A short video overview is also available on the Data Center Services page.

To learn more and download the brochure, visit **Data Center Services**.

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