Data center infrastructure Tiers

Single point of failure should be eliminated to improve redundancy and reliability, both within the data center and support infrastructure as well as in the external services and utility supplies.

This Standard includes four tiers relating to various level of resiliency of the data center facility infrastructure. The tier ratings correspond to the industry data center tier ratings as defined by the uptime institute.

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A data center may have different tier ratings for different portions of its infrastructure. For example, a data center may be rated Tier 3 for electrical, but tier 2 for mechanical.

For the sake of simplicity, a data center that is rated the same for all subsystems (telecommunications, architectural and structural, electrical and mechanical) can be called out by its tier overall (e.g. a tier 2 data center would have a tier 2 rating in all subsystems).

All portions of the infrastructure are at the same level, the tiering should be called out specifically. For example, a data center may be a tier rating of T2 E3 A1 M2 where:

- telecommunications are tier 2 (T2)
- electrical is Tier 3 (E3)
- architectural infrastructure is tier 1 (A1)
- Mechanical infrastructure is tier 2 (M2)

Although typically a data center’s overall rating is based on its weakest component, there may be mitigating circumstances relative to that facility’s specific risk profile, operational requirements or other factors that justify the lower rating in one or more subsystems.

Different areas within a data center may also be built and or used at different tier levels dependent on operational needs.

In such cases care should be given to describe these differences, for example, an area of a data center that has a tier 2 risk avoidance profile because it has T2, E2, A2 M2 services within a facility that may be Tier 3.

Care should be taken to maintain mechanical and electrical system capacity to the correct tier level as the data center load increases over time. For example, a data center may be degraded from Tier 3 or tier 4 to tier 1 or tier 2 as redundant capacity is utilized to support new computer and telecommunications equipment.

Revision #1
Created 6 October 2025 09:04:58 by RISA
Updated 6 October 2025 09:05:49 by RISA