

# Data Center Cleaning Services

## Companies Offer Wide Variety of Maintenance Options

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Less than optimally clean hardware can severely impact data center performance. Submicroscopic particulates can interfere with your valuable equipment's electronics, leading to hard-to-troubleshoot problems and even data loss.

Dissipating heat is essential to data center operations, which means maintaining a steady airflow through the data center. But this constant airflow can bring with it dust, dirt, and other types of particulates that find their way into your equipment's delicate electronic innards. No matter how well your filtering systems work, every now and then it is necessary for data center administrators to give the data center a good cleaning.

### **A Standard For Cleanliness**

Believe it or not, there is a standard for data center cleanliness. The ISO 14644 series of standards (14644-1 to 14644-8) are a series of documents that establish various classifications for cleanliness as well as methods for testing compliance, test methods, design/constructions/startup considerations, and others. This ISO standard differs from another standard developed by the U.S. government called FS209E.

The yardstick for measuring cleanliness is the amount of microscopic particles found per cubic meter of air. These particles range in size from 5 $\mu$ m (micrometer: a millionth of a meter) in diameter down to 0.1 $\mu$ m in diameter. Obviously, the larger the amount of large particles in an environment, the visibly dirtier the environment is. On the other hand, a small amount of very small particles means an extremely clean environment.

The ISO 14644-1 standard sets up ISO classes from 1 through 9; ISO Class 1, for example, allows only ten 0.1 $\mu$ m particles and two 0.2 $\mu$ m per cubic meter of air. Class 1 is the ultimate in cleanliness, a tremendously stringent standard that only highly controlled environments, such as clean rooms in microprocessor fabs, can achieve.

Most data centers need to be kept clean so they meet ISO Class 8 or 9 standards. Class 8 allows 3.52 million 0.5 $\mu$ m particles per cubic meter, while Class 9 ramps up the 0.5 $\mu$ m particle size allowance by a factor of 10, up to 35.2 million particles per cubic meter of air.