

# Data Center Cleaning

## Why is Data Center Cleaning Important?

Studies have shown that around 75% of storage and hardware failures are caused by environmental factors which ultimately results in lost revenue. High availability data center facilities require cleaning and contaminate removal with no downtime. Utilizing an experienced, highly technical team to maintain a clean and efficient data center facility is an often overlooked but crucial piece of the maintenance puzzle.

Critical Facilities Solutions specialize in data center cleaning and provide expertise in the following areas:

- Floor Surface Cleaning
- Equipment Cleaning
- Sub-floor and Above Ceiling Cleaning
- Post-Construction Cleanup
- Disaster Recovery
- Sub-Floor Sealing
- Zinc Whisker Remediation

### Floor Cleaning

This picture shows the floor before (right) and after (left) being cleaned. A clean data center floor not only looks more professional, but removes any potential contaminants.

### Ceiling Cleaning

It is important that ceiling grills are kept clean and costly particles that cling to the ceiling grills are removed. Particles can restrict airflow and can also contaminate CRAC units.

## **Duct Cleaning**

Duct cleaning drastically reduces airborne particulates which can either contaminate the CRAC unit or other IT equipment.

## **Floor Cleaning**

Sub floor cleaning removes and particulates, including zinc whiskers, within the plenum that can potentially damage cables or be blown through the floor grilles and into the data center.

# **Data Center Cleaning Frequently Asked Questions**

## **Why Should I Have My Data Center Professionally Cleaned...and What Are The Dangers If I Don't?**

Studies have shown that around 75% of Storage and Hardware failures are caused by environmental factors. The data center is the “heart and soul” of many businesses. Without properly functioning computer systems, many companies could lose 10's or even 100's of thousands of dollars per minute.

## **Where Exactly Does the Dirt Come From?**

Dirt, dust, carbon, construction debris, calcium carbonate, metallic, paper dust, synthetic fibers, human and non-human organic fibers and other often un-seen sources of contamination are leading causes of internal corrosion and equipment malfunction in today's computer systems. These contaminants can be corrosive, flammable, abrasive or hygroscopic (absorb moisture). If these contaminants are allowed to accumulate, they can contribute to several problems, including heat transfer, corrosion, and wear and failure of electrical contacts.

In the case of tape drives, every time motion occurs, some of the media surface comes off on the heads. Over time, this builds up and causes errors in reading and writing.

## **What do the leading hardware and media manufacturers have to say on the subject?**

**FUJI FILM** makes note regarding high performance magnetic particles and a magnetic layer .2um thick ATOMM-II technology that, “Even with a special back-coating to keep the friction coefficient consistently low, there is friction. Friction product equals metal particles that get airborne and move through mission critical systems”.

**IBM** states in their systems support manual under 'Floppy Drives – Causes of Drive Errors, Drive Errors and Performance Problems': "Many failures are caused by dirt and fiber particles, which pick up a minute electrical (static) charge and attach to the recording head surfaces...Hardware and application maintenance is critical to keep your systems running at peak performance. Unplanned interruptions shouldn't impact your business."

**HP** notes that for over 50 years the electronics industry has been aware of the relatively rare but possible threat posed by metallic particulate contamination. During recent years, a growing concern has developed in computer rooms where these conductive contaminants are formed on the bottom of some raised floor tiles. HP strongly recommends, in their site prep manual, that "your site be evaluated for metallic particulate contamination before installation of electronic equipment since metallic contamination can cause permanent or intermittent failures on your electronic equipment."

### **But Isn't It Expensive?**

The real question is what would downtime due to an outage caused by contamination cost me?

Here are some numbers to think about.

**IBM Today** stated, "One hour of downtime can cost between \$50,000 and \$500,000 an hour".

An article in **Disaster Recovery Journal** reported that more money is lost each year on downtime due to environmental contamination (dust and dirt in the subfloor) than on all natural disasters combined.

**Maxell's** Disaster Recovery Manual says, "Many of today's large organizations have become extraordinarily dependent on their electronic data. The loss of this online data or disruption of access to this data for hours or even minutes can be devastating. With system downtime costing enterprises up to \$6million dollars per hour, it is imperative to protect information assets." Horror stories abound from companies who have experienced an accidental "dump" of their fire suppression system due to environmental contamination. The smoke sensors cannot determine the difference between a cloud of smoke and a cloud of dust. Improbable as it may sound this is a much more common problem than people may think. Aside from the aggravation and time consumed what would it cost you if your fire suppression system were to "accidentally dump"? Hardware costs range in the \$10's of thousands of dollars and up per unit. Think about the value of your hardware alone. Then consider that the average cost to construct a data center is between \$300 and \$400 per square foot. You have spent millions of dollars to build a room and separate it from the outside world. You have spent millions more on the equipment inside that room. Now you have a continuous stream of contamination entering the room and very little being filtered out (the CRAC unit filters alone cannot possibly remove enough of the contamination to prevent an environmental outage). Without a

proper cleaning program your investment, and the world's best technology, can be rendered useless by dust.

So, the answer is no, having your data center professionally cleaned is not expensive. As a matter of fact, when comparing the expense of a proper cleaning program with that of downtime from environmental issues, the cleaning program is miniscule (pennies on the thousands of dollars if you will).

## **How Often Should I Clean My Data Center?**

**Sun Microsystems/Oracle** recommends in their site prep guide, the following cleaning schedule: "Bi-annually decontaminate the subfloor void and air conditioners; quarterly decontaminate the hardware and room surface; weekly vacuum and damp-mop the access floor".

**HP** recommends in their site prep guide that "twice a year, remove any contamination found underneath the raised floor and clean raised floor perforated panels".

At Critical Facilities Solutions we realize that every data center is different. We customize a cleaning program to fit your needs and budget. Our mindset is that something is better than nothing and different circumstances require different programs. For example, lights out areas do not need the same cleaning intervals as inhabited areas; high-traffic areas need to be cleaned more often than low-traffic; customer who conduct tours of their data center facility need a constant cleaning program verses quarterly and semi-annual programs for those who do not conduct tours. Our data center service professionals will work with you to customize a cleaning program to fit your environment, needs and budget.

## **Why Should I Use Critical Facilities Solutions?**

Critical Facilities Solutions has been offering innovative and progressive IT infrastructure products and data center service solutions to companies large and small for over 20 years. CFS is your source for the latest solutions for network operations centers (NOC's), data centers, computer labs, classrooms, trading rooms, 911 centers, and highly secure government facilities. As a networking and data center expert, CFS is often involved in the design stage. Whether your project is local, national or global, CFS delivers. CFS has decades of experience in the IT data center arena. CFS has been the primary source in providing companies with unique services and solutions that meet their most demanding mission-critical requirements.

Through our national network of operations managers and technicians, CFS is able to offer the same quality and consistent service from coast to coast. Since we make our living in the data center our crews are highly familiar with the environment. We use only the best equipment, methods, procedures, and chemistry available.