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## When the system fails, it may be the power

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With the great demand for renovating and building in Westchester County and Connecticut, our engineers have noticed a serious problem, as well as a ready solution, regarding the dramatically increased business demand for electric power and special power requirements. Recognizing the problem is often the key to its resolution.

Power-related loss of business productivity is especially noticeable with the growth of dot-com, communications and other technology companies, which depend on “the five nines” – 99.999 percent availability of uninterrupted service and operational efficiency.

We’ve been finding in the last several years and today that businesses, large and small, are significantly affected by the use of systems technology, both positively and negatively. Companies are looking to maximize sales, improve customer convenience, provide easy and faster access to information, increase their communications reach, enhance operational efficiency and increase productivity. Of course, all this is not without cost.

Businesses are finding the purchase of more and more advanced technology to be expensive and necessary to meet their own customers’ higher expectations of service. Technology continues to grow rapidly, requiring continuous upgrading to newer and bigger systems, even though technological expertise to pull it all together is spread thin.

To keep these expensive engines running, it is imperative not only that you purchase good systems technology, but also that you ensure that it is housed correctly, maintained well and that the appropriate electric power has been prepared for.

Most business people do not understand that the systems technology is not the sole culprit for disruptions in service. For example, some common indicators of poor power quality are wavy lines on computer screens, or computers that shut down or freeze. The misconception is that it is the equipment vendor’s fault, when often, it is badly engineered electricity delivery.

### Plan properly

Whether you are designing new buildings or moving into new or redesigned buildings or office space, proper electrical planning is required. The appropriate-sized electric power system, its capacity and its effectiveness in accommodating short- and long-term needs prevents and alleviates technology system failures and downtime.

Without getting too technical, it is important to adequately understand that the power quality, and the delivery of “clean” power, are less a function of the utility company and more a part of the initial buildout.

Most equipment and systems cannot effectively operate without a “clean” power system. Distortion can and does lead to electronic equipment failure.

Workstations and mainframes typically are a significant cause of power system distortion and voltage waveform distortion, leading to an increase in the total circuit current. With high circuit currents and undersized conductors, a facility can experience excessive equipment and conductor heating of the kind that results in breakdowns.

Electrical distortion, sometimes known as “noise,” is the enemy of all microprocessor-based devices such as computers and electronic equipment. The manufacturers of these devices make it clear that providing “clean” power and properly engineered grounding is important to avoid malfunction.

Electronics are extremely susceptible to noise and power disturbances, which can be produced by the utility company or the end-user’s own power system. System overload is due to inadequate power availability and will result in a shutdown of the electric service, leading to a failure of the equipment to operate. This can result in a substantial loss of business.

### Free checklist

We are posting a free complete checklist at [www.currentsolutionspc.com](http://www.currentsolutionspc.com) on how to prepare new space for the growth of technology. In the meantime, to avoid the most common pitfalls, here are questions to ask your engineers, architects and/or contractors:

**... it is imperative not only that you purchase good systems technology, but also that you ensure that it is housed correctly....**

- How do they know the new space or building has the appropriate power service to accommodate all of your technology needs?
- Was a survey of your requirements completed and signed off on?
- How scalable is the power service and will it allow for growth of new systems that are not even designed yet (but will be needed as your company grows)?
- Is quality and quantity backup power supply available? If not, what are the engineering and cost factors for this to be added later?
- Can the facility accommodate new electrical equipment to ensure “clean” power for future growth? If not, why are we here?
- How will the quality of the existing power available affect the performance of your new computer technology?

A power systems specialist with advanced power quality experience, possibly employed by your contractor or representative, should, based on this checklist, survey the existing conditions, evaluate your technology, review all electrical construction documents and suggest appropriate changes and remedies. This simple step will save you money and headache, both now and in the future.

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