



# The Hidden Cost of Lighting



## Background



1600 Duke Street is a seven story office building. Each floor has normal office tenants with typical electrical equipment: electronic ballasts, PC's, fax machines, phone systems and copy machines. There is no heavy machinery or industrial tenants.

Truland Service Corporation was started in 1995, having been a division of Truland Systems Corporation for more than fifty years. Truland Services is an authorized representative for Environmental Potentials' technology.



## The Situation

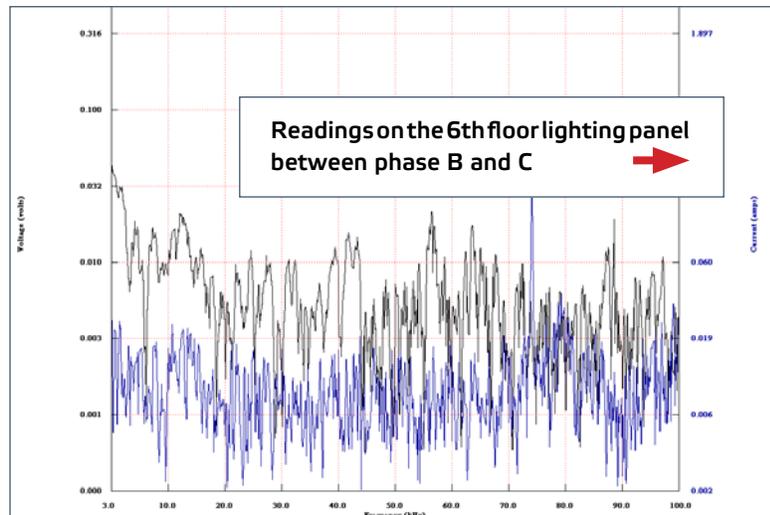


The electrical maintenance group contracted to service the office building at 1600 Duke Street, was spending more than \$2,500 per month in ballast replacement and lighting maintenance.

“It is very common to see ballasts burn out on a regular basis,” said Gerard Mullen, account manager for Truland Services. “Power pollution can ruin the ROI for T-8 and T-5 ballasts. Electronic ballasts can generate frequency noise with peak amplitude of 1500V at 25kHz and noise up to -20db.”

This noise wreaks havoc in the electrical system. It is critical to remove frequency noise and transient energy from the system. This power pollution is responsible for decreased asset life cycles, decreased equipment performance and losses.

The processes of rectifying AC to DC, and inverting DC to AC, are responsible for generating 85% of power pollution. This pollution is responsible for equipment malfunction, computer freezes, decreased lifespan of electrical equipment and increased electrical maintenance costs. In the case of 1600 Duke Street, the power pollution was burning out ballasts.



“Our readings showed that the system was completely polluted with frequency noise,” said Mullen. “Noise at these levels is very common and very harmful to electronic ballasts.”



### The Solution



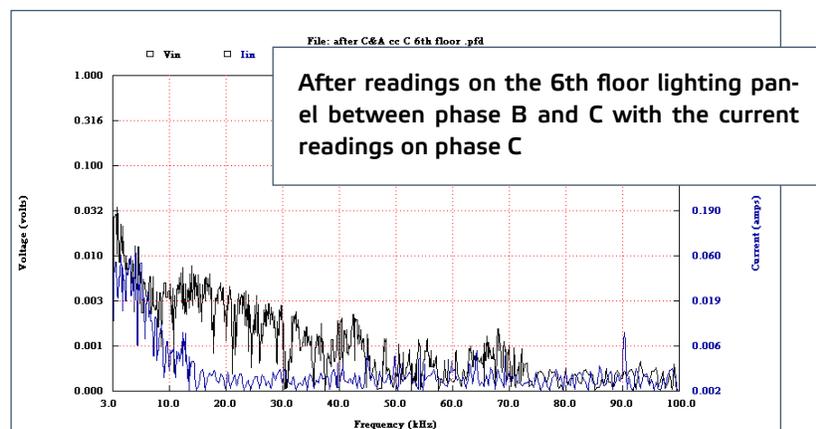
First, EP analyzed the power quality. Every electrical environment is unique so a comprehensive power quality analysis allows EP to determine the best solution.

The analysis was clear; the electrical system was polluted with frequency noise beginning at approximately 2.5kHz. The solution would have to focus on significantly reducing noise beginning at 2.5kHz. Filtering electrical power provides immediate benefits to T-8, T-5 and HID ballasts.

Environmental Potentials' patented waveform correctors are the strongest and most effective filters available. Pollution saturates every angle of the waveform therefore it is crucial to have a technology that focuses on filtering the entire waveform. It's equally important to eliminate this pollution from the system instead of diverting it to ground. EP is the only technology to meet these criteria.

"First, we installed an EP-2500 and an EP-2700 at the main," said Mullen. "Then we installed an EP-2000 at each lighting panel on every floor. This is a complete instillation and is guaranteed to eliminate internal power pollution."

The main panel needed an EP-2500 to protect the building from external events such as lightning. The EP-2500 offers 80kA of surge protection per mode and is strong enough for main gate applications in commercial environments. However, internal power pollution is the real threat to electronic ballasts, therefore the EP-2000, which decreases noise by -20dB, was placed on all lighting panels.



"Immediately after installation there was dramatic reduction of harmful frequency noise."



## The Result



After 30 days of 24/7 filtration and waveform correction, there was a 50 percent reduction in ballast replacement. EP's active filters constantly track and correct the waveform, removing frequency noise beginning at 2.5kHz.

After 60 days of filtration and waveform correction there was an additional 30 percent reduction in ballast replacement and maintenance.

After 90 days, no ballasts were replaced.

"With so many band aid approaches available in the industry, Truland Services is committed to offering actual solutions," said Mullen. "Environmental Potentials' technology is the solution for T-8 and T-5 ballasts."



### **Environmental Potentials**

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