

A Lighting Conversion Case Study

UEA PUBLICATION FORUM/VOL 127 – FALL, 2000

Sprint – Florida Operations 383 Buildings, 2,487,295 sq. ft.

“To renovate all the lighting systems within our entire Florida Operations was a major undertaking. It required a dedicated outside contractor who could operate with an in-house mentality.”

Description:

Sprint's Florida Operations are housed in the Company's 383 buildings located throughout the state, from Fort Walton Beach, in the Florida panhandle, to as far south as Naples.

These 2,487,295 square feet of workspace house all of the company's administration, switching, work centers and storage areas, and contains over 17,440 of assorted types of light fixtures.

Constraints:

Many of these fixtures were located within employee work areas where disruptions to the work force had to be avoided at all costs.

In addition, a large number of fixtures were located in sensitive switching areas, where one dropped tool or screw might short out thousands of dollars of equipment and plunge an extended area of phone customers into “no service”.

Also, hundreds of fixtures were located in dangerous or hazardous “Off Limits” zones,

such as power generation and battery back-up areas, where only the most skilled and careful installer could work with confidence over the high amperage buss bars.

Goals:

There were 6 types of basic fixtures making up the 17,440 total. Many of these were standard 4' and 8' strip fixtures utilizing electromagnetic ballast and T-12 lamps. There were also a large number of 2x4 and a few 2x2 recessed troffers. Other fixtures addressed in the renovation were incandescent and exit signs. These were to be converted to CFL and LED technology.

The primary goal of the retrofit was to save as much energy as possible, while improving light quality and at the same time dramatically reducing downstream maintenance costs by standardizing to one type of lamp throughout the entire system.

Solutions:

Because Sprint management had conducted experiments earlier, with various types and combinations of lamp CRI and Kelvin temperatures, the company had pre-selected a 4' T-8 lamp to become the standard lamp in all facilities. Fixtures burning 8' lamps were to be converted to utilize two (2) 4' lamps in tandem and 2x2 fixtures were to be replaced, whenever possible, with new 2x4 fixtures. All 4' lamps were

to be of the higher quality 800 series (85 CRI) with a 5000-Kelvin temperature to ensure maximum contrast quality. The lamps were also required to be low mercury type to reduce downstream maintenance costs.

Ballasts specified for this renovation were to be parallel wired to ensure that one lamp would always remain on in a two-lamp fixture, thus avoiding emergency maintenance situations, should there only be one fixture in a room. The specification also required that all ballast be rapid start to extend lamp life. This would be particularly important as part of Sprint's overall energy conservation program called for an extended use of occupancy sensors throughout the facilities.

In areas where more light was required than the normal conversion would produce, reflector panels were to be installed.

Components:

Specifications for this project were followed precisely. All hardware, including lamps, ballast, lamp sockets and end brackets were removed from the existing fixtures and replaced with all new components.

The reflector kits used were custom fabricated from Alcoa “Everbrite” lighting sheet. In most instances, the fixtures utilizing reflectors required half the number of lamps formerly used.

Results:

The combination of electronic ballast and T-8 lamps resulted in lowering the average required fixture input watts 40 to 60 percent. The renovation reduced Sprint's total lighting requirement by over 6,000,000 KWh annually and the KWD by over 12,200 KWD. Based on the average current rate of .074 per kWh, this will save the company over \$477,838 annually in lighting energy costs alone. When maintenance savings are included in the total, the projected total savings for this project over a ten-year period is over \$5,000,000!

Environmental:

This project eliminates the annual emission of over 8,956,000 pounds of CO₂ into the atmosphere. This is a strong step toward supporting cleaner air.

All removed lamps and those ballasts, containing the hazardous waste, PCB, were properly disposed of through a licensed hazardous waste disposal contractor.



**Contact: Mr. Donald Webster
Staff Engineer
SPRINT – Southern Operations
Box 490048
Leesburg, FL 34749-0048
(352) 326-1421**