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### **ISSUES WITH LED EXIT SIGNS Quotations from LED Manufacturers and NORTH AMERICAN ELECTRICAL MANUFACTURERS ASSOCIATION**

“Many products on the market today are utilizing power suppliers that drive the LED circuit well past normal operating limits in order to pass UL luminance requirements. This practice will most certainly lead to rapid depreciation of LED light output available for normal operation.”

Doug Andrews

Chloride Systems

LED Luminance Depreciation, “The light source in this sign will depreciate, which can lead to a light output that is below current building code requirements.”

Edward Gray

Director, Energy Policy

NEMA

Input Power Demand, “It will be hard for even LED exit signs to meet the proposed 3W requirement while providing the specified light output for a reasonable length of time.”

John Leonard

VP, Engineering & Product Development

Hubbell Lighting, Inc.

“There is a direct relationship between LED luminance life and input energy. . . . 3 watts per sign means fewer LED’s will be provided to achieve required luminance levels. Therefore, the per lamp LED current must be increased, and the result is a reduction in luminance life. A maximum input measurement of 3 watts is not achievable today without seriously compromising life, and the minimum luminance requirement cannot be honestly warranted for the required 5 years.”

Thomas W. Burnet

Gilbert

Input Power Demand, “We believe the proposed change to 3 watts per sign is too low to allow proper design. While it is possible to design an exit sign to meet this very stringent specification, it forces compromises in good design for long life.”

Billy G. Helton

Lithonia

## **Exit Sign Technology Comparison**

Originally, exit lights were standard incandescent bulbs, and were the only choice for many years. The earliest alternative to incandescent bulbs were radioactive tritium gas and compact fluorescent lamps. In 1985, L.E.D. exit signs were introduced.

One of the biggest challenges for emergency lighting manufacturers was uniform illumination. This is critical because partially lit signs are harder to see and distinguish.

### **Led'S Light Emitting Diodes**

Lumen depreciation, reliability issues, graying and inconsistent illumination are leaving consumers searching for an alternative. Moderate energy consumption, mostly being produced overseas, consistency and reliability issues. The cost of installation and constant testing and maintenance are costly.

- Lumen Depreciation and overdriven LED's.
- Uneven Illumination.
- Capacitor and Surge Suppression Issues.
- Warranties only cover electronic failures not loss of light output. Overdriven and damaged LED's do not completely fail they simply lose their brightness.

### **Compact Fluorescent (CFL)**

CFL's simply consume too much energy, produce heat, and lack the uniform illumination. Lamp replacement, reliability and general maintenance is costly.

- Uneven Illumination.
- High Energy Consumption.
- Short Use Life.
- Degrading Effects of Heat affecting performance and reliability.
- Disposal of CFL's is regulated by the EPA and contains high levels of mercury.

### **Tritium Gas**

These signs contain radioactive materials and pose a serious liability to building owners if the unit is cracked or broken. Environmental cleanup could run into the 6 figures quickly. Traceability of hazardous materials (paperwork) and high disposal costs are a real problem.

- Hazardous Radioactive Materials enclosed within the sign.
- Disposal Costs can run \$75-\$200 per sign; uncontrolled and undocumented disposal causes serious environmental issues to our water supply and environment.

## **Incandescent Bulbs**

This is the most inefficient technologies currently in use, and the most expensive to operate and maintain. Maintenance issues such as constant bulb changes, almost on a monthly basis, drive the maintenance costs through the roof, not to mention the unreliability and inconsistent illumination.

- High Energy Consumption.
- High Maintenance.
- High Heat Generation.
- Fragile Filaments, frequent replacements.
- Uneven Illumination.
- Hazardous Material, these bulbs contain a quantity of lead, which is why disposal of the bulbs is increasingly regulated.