

Kopa Group — White Paper, Hospitality Industry

Hospitality and lodging facilities require a broader array of lighting [solutions/applications] than most other industries — 24-hour fixtures in public areas and circulation spaces; ambient and task lighting in guest rooms; back-of-house operations like kitchens and loading docks; the list goes on. With conventional lighting technologies, this reality can translate into substantial energy expenditures, increasing both a company's environmental burden and its overhead costs. Kopa Group offers a range of solid state lighting solutions designed to significantly reduce energy requirements, creating an immediate and long-term impact on the environment — and the bottom line.

A full-scale retrofit solution by Kopa Group can [result in] a cost savings of 70–80% of a facility's lighting energy costs, a return-on-investment that means most retrofits pay for themselves in two to five years, depending on the size and requirements of the facility. The lifespan of solid state lighting devices, moreover, is several orders of magnitude higher than that of either incandescent or fluorescent devices, further compounding the long-term cost savings.

The Science

Incandescent lamps, which produce light by heating a resistive filament with an electric current, emit only 10 percent of their energy input as visible light, and 90 percent as (nonvisible) heat. Fluorescent lamps work by passing electric current through mercury vapor, creating ultraviolet radiation that is then absorbed by a phosphor coating inside the device, causing it to glow. While this technology is much less heat-intensive than incandescent lamps, the energy required to create the UV radiation and then convert it to visible light partially depends on the size and shape of the lamp. Although the efficiency ratio of fluorescents is nearly comparable to that of LEDs, their lifespan is much shorter and they are prone to lumen depreciation — emitting up to 50% less light with the same energy input after five years.

Solid state lighting devices employ light-emitting diodes, a semiconductor light source in which activated electrons release energy in the form of photons — light. The devices typically have built-in heat-management elements, further stabilizing their efficiency level and decreasing the amount of energy lost to heat seepage. Simply put, LEDs emit more light with less energy and less waste than traditional lighting technologies, and researchers continue to produce commercially viable LED lamps with higher and higher efficiency rates.

LIGHTING TECHNOLOGY	LUMINOUS EFFICACY (LUMENS/WATT)	LIFESPAN (HOURS)
Incandescent lamps	12–35 (example: 40W bulb–projection lamp)	1,000–2,000
Fluorescent lamps	50–100 (example: 9 32W CFL–T5 tube)	1,200–20,000
LED	50–150 (example: 7W LED PAR20–commercial white LED)	30,000–100,000

According to peer-reviewed research from U.S. Rensselaer Polytechnic Institute in 2008, if every light bulb in the world were replaced with LEDs for 10 years, oil consumption would decrease by

962 million barrels, removing the need for 280 power stations, cutting carbon dioxide emissions by 10 billion tons, and ultimately resulting in savings of \$1.83 trillion.

The health ramifications also in favor of SSL technology. Fluorescent lamps emit trace measures of both ultraviolet and electromagnetic radiation, both harmful to humans. They also require special handling after they are spent, as the mercury they contain is highly toxic and is easily dispersed into the atmosphere and soil when a lamp casing is damaged or broken. The safety threshold established by the U.S. Environmental Protection Agency — 2 mg./liter — is less than the amount of mercury contained in most fluorescent lamps.

Kopa Group Solutions

Below is a comprehensive listing of the types of lighting needs Kopa Group can retrofit for hospitality and lodging facilities. Kopa Group sources its products from numerous manufacturers, allowing for competitive pricing and wider selection.

Front of House

- front entrance, marquee
- landscape illumination
- front desk and lobby, public areas
- 24-hour hallway, elevator, and stair illumination
- conference rooms
- restaurant/dining facilities, bar
- gym and pool
- guest rooms (entrance, bedroom, sitting room, bathroom, closets)
- 24-hour parking facility illumination

Back of House

- offices
- kitchen
- housekeeping/maintenance facilities
- boiler rooms, underground tunnels
- storage areas, loading docks

Kopa Group retrofitting services include a soup-to-nuts process beginning with an audit of the client's needs by a dedicated lighting consultant. The resulting report details alternative retrofitting solutions, including replacement products suggested in each area of the facility; cost and time estimate of implementation; cost savings projections; and scalability options. When implementation is complete, Kopa Group performs a post-mortem analysis and executes any necessary adjustments. Thereafter, Kopa Group provides the client with a yearly same-month cost comparison of lighting expenditures.