



Overview/Purpose



LOMA LINDA UNIVERSITY
MEDICAL CENTER – MURRIETA

The purpose of the project was to demonstrate Light-Emitting Diode (LED) lighting technology in a hospital environment by: (1) establishing a demonstration project that other hospitals and related end-users requiring general illumination in 24/7 areas can learn from or see first-hand in action; and (2) to gather data about the technology in an operational environment to better understand how the use of LEDs can have a positive impact on both its patients, staff and visitors while reducing energy consumption through greater efficient technologies.

Staff, patient and overall customer experience was received as part of the project. These findings were confirmed through a series of short questions and interactions with doctors and nurses who overwhelmingly indicated a need and the subsequent improvement in general illumination. Collecting and evaluating this input and confirming the problem comprised the first step in the hospital's approach to the project.



Project

LLUMC-Murrieta's demonstration project consisted of 1,854 four-foot/32 watt fluorescent light bulbs, 920 four-foot High Output (HO) T5 fluorescent light bulbs, and 512 two-foot fluorescent light bulbs. All were changed to corresponding linear LED replacement lamps consuming 17 watts, 29.5 watts and 10 watts respectively.

Savings from the transitioning to LED technology was documented in four areas: (1) electricity usage due to lower wattage LED lamps compared to fluorescent tubes; (2) maintenance avoidance due to less lamp failures (fluorescents and ballast replacements and associated labor); (3) reduced HVAC load due to less heat being generated in the fluorescent fixtures which equated to less energy required to keep areas at required temperatures, and (4) more foot-candles of light at the work plane.

The financial results were as follows:

- Total Annual Savings = \$94,175.
- Lifecycle Savings = \$537,535
- Simple Payback = 0.96 years
- Annual ROI = 104%

- Annual Energy Savings = \$52,465. per year
- Lifecycle Energy Savings = \$299,450. per year
- Annual kWh Before = 1,031,160
- Annual kWh After = 419,710
- Lifecycle kWh Conserved = 2,395,600

- Reduced HVAC = \$28,350. per year
- Lifetime Reduced HVAC = \$161,820.