Ask the Experts

Green Building Experts

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LED technology: The hot button choice

Philip Cialdella

In the ever changing world of lighting choices, the building owner is bombarded with choices of removing the existing fixtures for new ones or retrofitting the existing fixtures with new technologies. The last pass was Compact Fluorescent (CFL), this time the hot button choice is LED.

LED technology has been around for more then 30 years, used in indicator gauges in car dashboards, or backlighting instrument panels. They are small, inexpensive, lasted a very long time and ran cool. In the last 5-7 years, the LED started to become a tool in lighting architecture and used for retrofitting building lighting. Like CFL the first generation was very cool or looked blue making people and buildings have a ghostly appearance. In the past 3 years the LED manufactures have realized the huge business potential in LED's for architecture. They have re-worked the recipe of the LED to replicate the performance and look of incandescent, warmer, more red and yellow in the LED, not so much blue. This opens up a whole new market to manufactures and many choices to the building owner, maybe too many choices. This is where asking questions, seeing similar installations and speaking to other building owners about their experience will pay off.

The joke in our business is, the most expensive part of a lighting fixture is the light bulb. Maintenance is the single biggest cost factor in a lighting system, along with energy consumption. If properly planned, LED could be the solution, but be informed. An incandescent lamp lasts about 1,000 hours, halogen about 2,500 hours, CFL lasts about 12,000 hours, a properly heat manged LED will last about 50,000 hours. Incandecent and halogen have become luxuries due the energy code and lamp life. CFL is now slowly being pushed out by LED. Light source efficency is measured by lumens per watt, like miles per gallon in a car. Incandescent is 15 lumens per watt CFL is about 70 and LED's are getting close and sometimes passing that efficiency, add 4 times the life of CFL for maintenance, it is a compelling argument.

Be informed, see installations and do more research. In retrofit products make sure the LED is designed to be installed in a closed fixture, LEDs run very hot, if heat is trapped the 50,000 hour lamp life is lost. Make sure the Color Rendering Index is good, incandescent has a CRI of 100, CFL is 85, use LED's with a CRI of 80 or more. If installing new fixtures there should be a warranty of 3-5 years or more. Stick to name brand LED's like Cree, Philips, Xicato, and test them in your building before you commit.

Philip Cialdella is the president of Light Abilities, New York, N.Y.

Demand response programs a better way to go green/earn green

Sam Ritter

Conserving electricity may help you do more than just going green—it could help you save a little green, too. More utility companies offer demand response programs to reward businesses that lower energy use during times when demand is high.

The programs reduce the amount of power that utilities have to purchase, and in turn, they pay back consumers with cash or other perks.

How Do Demand Response Programs Work?

Utility companies typically offer financial incentives to those enrolled. Some provide credits, while others offer more energy-efficient thermostats and other appliances.

Here's how it works: A utility provider pays customers a monthly or yearly fee to install a radio-controlled device on outside air conditioning units, which they can then turn off at intervals of peak demand. These automated systems detect when energy is in high usage, then lowers voltage without cutting power altogether.

Not all demand response programs require an automated system—some businesses enrolled in these programs lower their usage and receive kickbacks from the utility company based on kilowatts reduced. Most companies base enrollment on existing usage and have different programs to meet the individual business' usage capacities. As a result of lowering voltage during peak usage, lights go dimmer for a while, motors may run slower or hot water heaters take longer to reach intended temperatures.

The Benefits of Enrolling in a Demand Response Program

According to government studies, these programs could cut peak demand up to 15% in the U.S.—a win–win situation because it cuts greenhouse gas emissions, saves consumers money and decreases costs associated with system upgrades. The weakened economy has kept these programs below their potential in some areas, especially those that do not have renewable energy standards and efficiency goals.

Slashing Energy Demands in New York

In New York, buildings with large energy loads can join programs via a variety of organizations. The New York Independent Services Organization (NYISO), which heads up the state's electricity grid and the dispatches electric power generators, offers four demand response programs—the Emergency Demand Response Program (EDRP), Installed Capacity (ICAP) Special Case Resources (SCR) program, Day Ahead Demand Response Program (DADRP), and the Demand-Side Ancillary Services Program (DSASP).

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