



LED lighting becomes game changer in commercial buildings

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The question of what lighting to use to achieve optimum energy efficiency has become more challenging as LEDs (light-emitting diodes) move to the forefront as an energy source for commercial buildings. LEDs have been a staple as indicator lights in electronics for years but only recently have technologies evolved, including the ability to produce white light as opposed to red, green and blue, to become an important trend in commercial lighting.

LEDs use at least 75% less energy and last up to 50 times longer than incandescent lighting (two to five times longer than fluorescents). LEDs are more energy efficient because they emit light in specific directions, with heat drawn away via a heat sink, while incandescent and compact fluorescent bulbs emit heat in all directions, releasing a tremendous amount of energy. Thus, LEDs reduce cooling and maintenance costs.

With LED's longer life span, there are fewer bulbs to change, lowering replacement costs. They do not burn out, but dim over a long time with a life cycle determined by a 30% decrease in "lumen depreciation."

How does that translate in real dollars? A U.S. Department of Energy report found that if nine U.S. markets switched to LEDs overnight, annual energy savings could approach 3,873 tBtu, or about 3.9 quadrillion Btu (quads), saving nearly \$37 billion in annual energy costs. This amount represents approximately half of the total national lighting energy consumption in 2012.

What then are the downsides of LEDs? For one, they are more expensive. Property owners must make a considerable investment on the front end to achieve significantly lower costs in the long term. For another, poorly designed and manufactured LED lighting can result in flickering, color change, poor light distribution, delays in response or produce heat when turned off. LEDs should carry the UL or ETL certificate to demonstrate quality control.

As LED lighting technology continues to evolve, quality is improving. Costs are decreasing as demand skyrockets. Competition is fierce and with good reason: because LEDs last much longer than traditional lighting products, on-going labor and material expense is lower.

LEDs are adaptable for retrofits and easily incorporated into contextual design ideas. They are cool, literally and figuratively, and, serve to attract tenants lured by upscale technologies that offer environmentally-friendly, energy efficient features.

The smart money is on LEDs as costs decline in tandem with continuing ascendance of the desire to live and work in green buildings.

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