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The importance of right lighting - by Marc Karell

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In the last couple of years “everybody” has learned about the great cost savings to be achieved by switching to LED lights, direct electric cost savings of over 50% with added savings due to reducing

load on AC and reducing O&M. LEDs can be used in so many situations, can be dimmed, and now fit in virtually every type of fixture or ballast.

Thus the temptation is just to go to the store and pick up a bunch of LEDs and begin to substitute. Sure you'll save some cost. But that's a big mistake and you can actually cost yourself more money and harm the productivity of your workers, the ability of your tenants to do business, tenant safety, and the sellability of products by the retailers in your buildings.

In fact, even if you are not changing to LEDs, it is important to review your building's lighting, as the very way we work has changed. In the last 20 years, offices have gone from reading and writing on paper only to mainly using computers and other screens. Screens supply some light. Thus overhead lighting needs (number of lumens) for office workers to function have dropped somewhat. Over-lighting is a potential issue, which increases costs, and may adversely affect worker health, mood, and productivity.

In the "old" days of exclusive working with paper, the recommended lighting levels were as high as 1,000 lux (1 lux = 1 lumen/sq. meter). However, the U.S. General Services Administration (<http://www.gsa.gov/portal/content/101308>) now recommends levels such as 500 lux for open offices, 300 lux for conference rooms, and less in other areas.

Therefore, it is useful before and after changing a building's lighting to perform a lighting study. Have light readings taken to determine whether you are over-lighting an area. It may be tempting to say after an LED upgrade, "My electricity costs are now so low, I don't mind over-lighting." This is a mistake as over-lighting stresses employees, causes headaches and anxiety, and may interfere with sleep and circadian rhythms. In other words, it may affect productivity, which could cost your company more money than would be saved by switching to LEDs.

If you find areas of over-lighting, do some "de-lamping:" remove some lamps to bring light levels down to the recommended intensities. Not only will you improve the productivity of your workers and tenants, but you will save additional energy costs and O&M operating fewer lights. But make sure you don't overdo your de-lamping.

Finally, take into consideration the time of day. During different times of day, sunlight may enter certain workspaces. During those times, allow the sunlight in. Workers work better under natural light. Either procure/use daylighting sensors to adjust the artificial light to the sunlight entering from outside or turn down or off certain banks of lights when the sun shines in. Again, make the effort not to over-light areas.

CCES has the experts to conduct lighting studies for you and to make determinations of what types and intensities of lights should be brought in to meet standards for different uses and for security. We can recommend the right daylight sensors for different parts of your building and where to re-locate lights to get the best lighting for your tenants and workers, based on their job needs.

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