Fluorescent Lighting in Offices

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Part I: Research Summary

Medical research points towards a number of effects of fluorescent lighting that threaten to directly impact work quality and comfort for office workers.

√ Fluorescent lighting causes eye strain and fatigue in both adults and children

One important aspect of fluorescent lighting is the so-called ‘flicker effect.’ Fluorescent lighting is produced by the rapid firings of electric discharges in the bulb, creating a rapidly flickering stream, instead of a continuous stream of light. Usually, this flicker is not visible, however it has been shown to affect the basic brainwave pattern (what is known as the EEG)\(^1\) and to decrease work efficiency.\(^2\) In addition, there is medical evidence linking the flicker effect to eyestrain, fatigue, and a decrease in visual performance in both adults and children.\(^3\)

√ Fluorescent lighting is not only unpleasant, but negatively impacts quality of work

In young persons, use of high-pressure sodium vapor lamps in low-daylight environments is correlated with high rates of absenteeism, and low achievement levels.\(^4\) Furthermore, under fluorescent lighting, warm colors appear dull, and the prominence of blue in much of the fluorescent lighting makes human skin appear unhealthy, affecting clients’ interactions with your employees and your employees’ interactions with each other.\(^5\) This medical research only reinforces a wealth of anecdotal evidence that the fluorescent lighting so common in offices, is not only unpleasant, but also has a negative effect on quality of work.

√ Fluorescent desk lighting can cause skin damage

Compact Fluorescent Lights (CFLs) produce more UV light than traditional incandescent bulbs, and thus can cause damage to unprotected skin more rapidly. This danger is more pronounced when CFL bulbs are used in desk lighting or close proximity task lighting applications – both of which are quite common in office work environments.\(^6\)

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4 Hathaway 1994.
5 Veitch et al. 2002.
6 Khazova and O’Hagan 2008, Canada 2009
Fluorescent bulbs contain dangerous levels of mercury

Both traditional fluorescent lights and CFLs contain cautionary levels of mercury, which can cause damage to the brain, liver, and lungs, as well as sensory impairment. In fact, a CFL contains just as much mercury as a large, old-fashioned fluorescent bulb. Because of this danger, the Environmental Protection Agency has issued hazardous waste warnings, and recommended complicated procedures for recycling used bulbs and cleaning up broken ones. In contrast, LED lights don’t contain any mercury.

Fluorescent lighting can aggravate pre-existing health conditions

Lastly, fluorescent lighting can worsen the symptoms of persons with a variety of pre-existing health conditions. For example, research suggests that the flickering nature of fluorescent lighting increases symptomatic repetitive behaviors in autistic children. Also, the UV/blue light radiation from CFLs has been identified as a potential risk factor for aggravating the symptoms of persons with light-sensitive skin conditions.

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7 These instructions can be found on the EPA website, at <http://www.epa.gov/cfl/cflrecycling.html>
8 These instructions can be found on the EPA website, at <http://www.epa.gov/cfl/cflcleanup.html>
9 Coleman et al. 1976.
10 European Union 2008.
Bibliography

(All of the references below are contained in their entirety in the Research Packet that follows, except those followed by a “**”)


