



HEALTH & PRODUCTIVITY BENEFITS OF NATURAL LIGHTING

Learn about the benefits of natural lighting in a workplace as well as the health risks associated with prolonged exposure to artificial light. We'll explore practical solutions to increasing natural light exposure in an existing workplace.

*Copyright 2016 by
Make Great Light.
All rights reserved.*



Health & Productivity Benefits of Natural Office Lighting

As new office buildings are built every month, more and more individuals are spending hours in workspaces with little or no exposure to natural sunlight. It should come as no surprise that our bodies react in negative ways to such conditions and, in return, influence how well we function in a professional environment. Although our bodies have adapted to artificial lighting over the years, being in a naturally lit environment triggers responses within our endocrine system that are needed to manage sleep, moods and our immune system. By replacing artificial light with natural light, employees will experience many positive results including improved mental clarity, better vision and a decrease in headaches and migraines.

Natural Lighting Regulates Body Systems for Better Sleep

Studies by the American Academy of Sleep Medicine (AASM) [1] have recently shown that sleep disorders are not only an illness – they have reached epidemic proportions. One of the most common sleep disorders is insomnia, which renders workers physically unable to sleep, despite increased fatigue. According to a comprehensive study done by Dr. Ronald Kessler of Harvard University [2], “an estimated 50-70 million people are reporting nighttime sleep loss associated with daytime impairment.” The same study also notes that “workplace accidents, absenteeism and lost productivity cost US businesses somewhere between \$15 billion and \$92 billion.” When employees feel tired at work, they can’t perform their jobs at the same level of productivity as they can after a full night’s sleep.

Our bodies need to maintain a consistent sleep cycle to guarantee top performance. Without it, a worker’s productivity and overall health will dramatically decrease over time. Incorporating natural lighting assists helps to balance our body’s circadian rhythms. Natural light triggers a tiny gland in our brain, the pineal gland, to produce *serotonin*, a hormone that helps keep us awake and alert. With the assistance of natural lighting, our bodies convert



serotonin to *melatonin* at night. Melatonin secretion is what helps us sleep soundly.

A recent study by the Northwestern University School of Medicine found that employees exposed to natural light in the workplace received 173 percent more white light exposure during work hours and slept an average of 46 minutes more per night than employees who lacked natural light exposure in the workplace. The workers also noted that workers in offices with windows tended to engage in more physical activity than those without windows. [8]

When our body systems are functioning as they are meant to, it's easy to draw a direct line between well-rested employees and job performance and safety.

Employees Experience Increased Mental Health with Regular Exposure to Daylight

When winter hits, it brings snow, gray clouds, less sunshine – and, sometimes, Seasonal Affective Disorder (SAD). It is estimated that 10 million Americans suffer from some form of SAD [3]. While the specific cause of SAD has not been identified, many physicians believe it stems from a decrease in serotonin and an imbalance of melatonin brought upon by the loss of daylight [4].

The symptoms of SAD include having trouble concentrating, losing interest in usual activities, ongoing fatigue, listlessness and tiredness amongst several others. When any of your office workers suffer from SAD, the symptoms affect their productivity by inhibiting their ability to complete tasks. Introducing natural lighting into your office environment will reduce the symptoms associated with SAD and help workers return to their usual productivity levels.

Natural Lighting Increases Visual Acuity & Productivity

A study conducted by Brian Liebel, Rita Lee, Robert Clear, Sam Berman and Marc Fountain [3] concluded that lighting that emits a bluish color consistently



constricts an individual's pupils. As a result, the overall function and reading ability of the eye was enhanced. Having more blue light in the visible spectrum helps constrict the pupil, which increases the eye's visual acuity. Visual acuity refers to the ability to discern the shapes and details of objects you see. If you have ever taken an eye exam, you are familiar with visual acuity testing.

Because our eyes are meant to function under full-spectrum lighting, having natural light helps to boost productivity and improves how well one can read a computer screen, pieces of paper or clocks on the opposite side of the room.

Regular Exposure to Natural Lighting Prevents Headaches & Migraines

If some of your employees frequently develop headaches and migraines at work, it may have something to do with the lighting. Teri Robert [5], an expert on the subject, has concluded that migraines may have three potential triggers: glare on computer screens, glare from overhead fluorescent lighting, and flickers from fluorescent lighting. Headaches and migraines prolong tasks and delay work from being produced. To alleviate these and prevent lost productivity, try replacing or enhancing fluorescent lighting with natural lighting. It will help eliminate headaches and migraines and create a healthier work environment.

Decrease the Risk of Cancer by Limiting Exposure to Artificial Lighting

A recent study by the National Institute of Environmental Health Sciences (NIEHS) [7] shows that exposure to artificial lighting, especially at night, has the potential to stimulate breast cancer. Although the study was done on a group of laboratory mice, this research has been proven to simulate the same effects on human bodies. Another study from NIEHS [7] tells us that, "the risk of developing breast cancer is about five times higher in industrialized nations than it is in underdeveloped countries."



One supported theory is that a decrease in melatonin production is a key contributor to breast cancer development. Workers exposed to fluorescent lighting during the night hours are most at risk, since the lights trick their bodies into suppressing melatonin secretion.

Natural Lighting Options for Work Environments

So how do we obtain more natural light exposure in a building? One option is to invest capital in costly building improvements such as new windows and skylights. But a few less costly tactics and products can increase natural lighting in your workplace:

Rearrange the office: Relocate employees closer to existing windows and use interior spaces for functions where people aren't present for hours on end.

Encourage time outside: Offer employees the opportunity to take regular breaks and frequently go outdoors for short periods of time. Champion a daily walking club.

Install full-spectrum bulbs: Full-spectrum bulbs come close to mimicking natural light. They have been used for years to help treat SAD in colder climates. Unfortunately, they are more expensive than regular fluorescent lamps, consume more energy, and have a shorter lifespan than standard fluorescent bulbs.

Fluorescent light filters: These light filters work with existing fluorescent bulbs and offer the closest approximation to natural light. Cost effective and reusable, they can provide years of natural full-spectrum light.

In conclusion, implementing natural lighting is simply another step in the right direction to providing a healthy work environment – one that ensures the mental and physical wellbeing and productivity of all employees.



SOURCES

1. Christopher Bergland + Psychology Today
<https://www.psychologytoday.com/blog/the-athletes-way/201306/exposure-natural-light-improves-workplace-performance>
2. Dr. Ronald Kessler + Harvard University
<http://www.makegreatlight.com/blog/zombie-nation-fluorescent-lights-rob-us-sleep>
5. Teri Robert + Health Central
<http://www.healthcentral.com/migraine/triggers-160927-5.html>
3. Psychology Today
<https://www.psychologytoday.com/conditions/seasonal-affective-disorder>
4. Mayo Clinic
<http://www.mayoclinic.org/diseases-conditions/seasonal-affective-disorder/basics/causes/con-20021047>
6. Brian Liebel*, Sam Berman, Robert Clear, Rita Lee, Marc Fountain AfterImage + Space, Oakland, CA. <http://www.walalight.com/reading-speed-and-accuracy-are-affected-by-light-level-and-lamp-spectrum/>
7. David A. Schwartz NIH News + NIEHS, Cooperstown, NY.
<http://www.nih.gov/news/pr/dec2005/niehs-19.htm>
8. Journal of Clinical Sleep Medicine - June 2014, Phyllis Zee, MD, PhD, Northwestern University Feinberg School of Medicine.