

LET THERE

BE LIGHT



MORE COMPANIES ARE WAKING UP TO  
BUT WHAT HAPPENS WHEN

THE CRITICAL ROLE OF OFFICE LIGHTING.  
WE WORK FROM HOME?



**A**N estimated 3.8 billion email accounts worldwide fire off more than a quarter of a trillion messages each day, some of them not even spam. Out of this staggering sum, some will be sent outside of typical working hours and the controlled environment of the workplace.

Such was the case for Sam Hagerman, founder and owner of a boutique building company in Portland, Oregon. He had just returned from a festive holiday party at his alma mater, shed his tuxedo, brushed his teeth, and crawled into bed. Work still weighed on him, though, so he snatched his laptop to check email. The only light in the room shone from the laptop's backlit screen, which he had darkened so as not to disturb his wife. There he found a message from a client he had spent countless hours wooing. This, he hoped, would be the news he had been waiting for.

Hagerman did not like what he read. The client complained that his firm was making the process too difficult for her. *Too difficult for her?* Hagerman thought, remembering the two years he had put into the deal. Perhaps deft diplomacy would salvage things, but Hagerman lost his patience and replied to his team: "I think this fish is rotten at the head. Let's cut bait." Then he shut his laptop and went to sleep—not realizing he had hit "reply all."

The deal, of course, was over by the time the client saw the email the next morning.

Possibly, the late hour affected his judgment. But Hagerman had sent the email in the dark, and studies show that we humans act differently in low light than we do in the light of day. When the lights are dim, humans tend to feel less connected to others. In the shadows we care less about what others think of us. One theory is that ambient darkness lowers a person's visual acuity and makes him feel hidden from others. So we let down our guard and are more apt to make more hedonistic (read: authentic) choices.

For Hagerman, this may have meant letting off steam instead of managing the client.

L I G H T   I N   T H E   W O R K P L A C E

**T**O thrive in today’s globally competitive environment, companies at the top of their game expend great effort toward giving their workers any edge. In addition to generous compensation packages, they provide perks and benefits that range from health club memberships to on-site laundry facilities to stress-busting programs. But there’s also a critical link hiding in plain sight that helps people function at their very best.

We are talking about light. Vision comprises 80 to 85 percent of our perception of the world around us. So perhaps it shouldn’t be surprising that lighting can act on people in subtle and not-so-subtle ways. It can affect how we feel, what we do, and how well (or poorly) we do it. The right light can wake us up in the morning—as much as a strong cup of coffee—or help us wind down for a blissful night’s sleep. It can coax greater productivity, concentration, and creativity out of workers.

Lighting can be designed to change throughout the day, mimicking the movement of the sun and helping us keep our bodies and minds in sync. Or it can be used to help shift the mood in the evening, making it ideal for a networking event. Coupled with decent ventilation, studies show that good lighting can improve employee job satisfaction by almost 25 percent, increase productivity by 16 percent, and lower absenteeism. And it can minimize mistakes, too: an associate professor at Harvard University reportedly reduced errors at NASA Mission Control by switching to rich blue lighting, which could also be applied to healthcare settings to reduce medical errors.

Equally true, however, the wrong lighting can be harmful. A study at Cornell University found that people working in offices with poor lighting saw a 15 percent drop in their creativity while having a 6.5 percent higher likelihood of falling sick. Artificial light such as the kind emitted by fluorescent and halogen bulbs has been connected to disruptions in our internal body clocks, which causes the light-triggered release of hormones that regulate bodily function.

To some degree, businesses have long understood the importance of good lighting. They employ lighting designers and other experts who know what sparks our brains and what doesn’t. They choose the kinds of lights they believe will yield the best results—when to turn up the lights or tune their color spectrum to increase concentration and coax greater productivity from workers. Over at WeWork, there’s even a 14-person team dubbed “The Dream Squad” tasked with designing the ideal lighting for co-working spaces.

But the obvious question is, what about all the legions of people who don’t work in company offices or special co-working spaces? They take their work home with them, or are the harried folks you see typing reports and holding videoconferences on the run, or replying to texts and emails in coffee shops, airports, and aboard airplanes at all hours of the day and night. These digital doers aren’t getting much guidance, yet their performance can obviously have a great impact on an organization’s performance.

For his part, Eric Higgs, founder of Florida-based LumaStream, suggests that these people seek cooler lighting “while they are maximizing productivity and warmer light into the evening.” Of course, this is easier said than done for the business warrior who’s checking into a hotel at 2 a.m., waiting for a flight to Newark, typing an email on a mobile phone in the back of a taxi—or accidentally hitting “reply all” to a client’s email in bed after a long day.

H O W   T O  
L I G H T   U P   A   R O O M



A

Task

Always use focused illumination for work surfaces.

B

Natural

Maximize by removing window coverings or adding skylights.

C

Pendant

A great way to balance lighting throughout a large, open layout.

D

Accent

Dimmable wall fixtures can set a calming mood on bland walls.

E

In-Ceiling

Uniform overhead lighting help to reduce eye strain during work time.

B U L B  
I N T E N S I T Y

1000 lux  
Hospitals,  
Detailed  
Task Areas

750 lux  
Laboratories,  
Mechanical  
Workshops

500 lux  
Office Spaces,  
Conference  
Rooms

300 lux  
Computer  
Workstations,  
Classrooms

DISADVANTAGES  
OF  
POOR LIGHTING



Eye strain  
Drowsiness  
Boredom  
Headaches  
Low productivity

ADVANTAGES  
OF  
QUALITY LIGHTING



Reduced eye strain  
Better mood  
Comfort  
Higher energy  
More productivity

Illustration: Richard Montoya

Sources: energy.gov, lumens.com, greenbusinesslights.com, cisco.com, mountlighting.co.uk

## WHAT BUSINESSES DO

**O**ffices typically employ three basic types of lighting applications: general lighting for open spaces, task lighting for desks and focused work, and videoconference lighting. But they all have one thing in common: they utilize blue light, which tends to energize us humans.

That's because of the way we process light, which potentially can cover the spectrum of colors. It comes down to nature. The sun, which is the ultimate lighting source, provides full spectrum light—light that not only spans the entire visual spectrum, it also has colors we can't even perceive. When the sun rises it gives off warm colors like orange and red, which suffuse us with calm. At the height of the day, with the sun overhead, the light is cooler, which means it's sharper and enriched with more white and blue hues. As the sun heads toward the horizon, the colors become warmer again, until nightfall. That's nature's way of telling us it's time to sleep.

"A lot of our body chemistry is based on the day-night cycle, which we refer to as the circadian rhythm," says Stan Walerczyk, principal of Lighting Wizards and chair of the Human Centric Lighting Society. "If you do not get sufficient exposure to sunlight, your circadian rhythm gets messed up and that, in turn, messes up your hormones—and then you're all screwed up."

But there is nothing natural about working inside in an office: "We spend 90 percent of our time indoors," Higgs says. "Our biological clocks are out of sync from work and life conditions."

That's why companies have to give lighting some serious thought, especially if workspaces are in windowless settings. People who work in such conditions report lower scores on quality-of-life measures, while studies show those with windows in their workplaces received 173 percent more white light exposure during work hours. They then slept an average of 46 minutes more per night.

It isn't just the existence of light that affects workers, it's also the type and quality of light. "There's no question different spectrums of light can cause different effects," Higgs says. Cooler lighting is more typical in a workspace than in the home since it is perceived as more energizing, while warmer light, with its red and orange hues, settles you down.

Until recently, many companies opted for florescent lights in offices because it was cheaper in the short term through energy savings. But such artificial light has been connected to disruptions in our internal body clocks. The good news: as the cost of LED lighting has dropped, there's been a movement among companies for more "human-centric lighting."

The experimentation, though, has only begun. For instance, for the 2015 season, the Seattle Mariners hired Walerczyk to design and implement an LED lighting strategy in the home team's locker room. The goal was to design the lights to intensify the players' moods, increase energy levels, and improve their on-the-field performance.

"We tuned it so that before a game the players were exposed to blue-enriched light and after the game they received a warmer light, so they could eventually go to sleep easier," Walerczyk says. (The team's record improved, although with players regularly switching teams it's hard to track the lighting's role.)

## WHAT ABOUT THOSE OUTSIDE THE OFFICE?

**M**illions of Americans work outside the office. One poll found that 43 percent of employed Americans spend at least some time working remotely. Companies, meanwhile, are finding that allowing their workers to telecommute is simply good business, saving millions of dollars in office space (and expensive lighting designs), raising morale and loyalty, and meeting the demands of younger job seekers—i.e., millennials—who prefer it.

Obviously, organizations can't come into people's homes, but experts think guidelines for remote workers might help in a number of ways, such as reminding workers about the pitfalls of communicating with staff, vendors, and customers late in the evening or in places with poor lighting. Raising awareness is half the battle.

For his part, Walerczyk advises investing in a tunable lamp in homes and home offices, which can be adjusted to emit more blue light to energize, and more red or orange light when it's time to wind down. Being near natural light always helps, so put your office desk near a window, and ditch any fluorescent or halogen lamps you might have. Above all, "email and text should be turned off while people are sleeping or resting," he says.

Not one to lack ingenuity, Sam Hagerman, the construction firm owner who accidentally hit "reply all" on a message his client wasn't supposed to see, came up with his own proactive, foolproof steps to prevent anything like that from happening again. He had an assistant set up a passcode on his mobile phone so he couldn't respond between the hours of 10 p.m. and 5 a.m.

"I made her promise not to tell me the code," Hagerman says. ▀