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Why Healthy Workplaces Matter

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Abstract

Employers are realizing that workplaces have an immense impact on productivity. And, because people typically represent about 90% of a company's costs, even a slight improvement in productivity hits the bottom-line in a very big way. The focus is shifting away from saving money by reducing space needs or cutting energy requirements, and moving toward making the workplace friendlier and healthier. What is a healthy workplace, exactly? The answer should be clear by now. Mountains of research have expounded on this very topic, and then news outlets cover the latest discoveries ad infinitum. The problem is, research is rather dense, while the news isn't comprehensive. Office managers trying to improve workplace wellness want neither a 55-page report nor a half dozen articles to convince their landlord that their space can do better. Recognizing this gap, Harvard researchers have released a concise-yet-complete list of healthy building features. Here, we're sharing these nine features with a few insights of our own on the value of being healthy *and* productive. Find out:

- What makes a healthy building and why is it so important
- How to improve the health of your own office
- What happens for your people and your bottom line when you make health a priority

Keywords: Wellness, Workplace, Productive, Productivity, Healthy, IAQ, Noise, Acoustics, Thermal comfort, Lighting, Daylight, Daylighting, Ventilation, Views, Smart Buildings

1. 9 Ways to Improve Workplace Health

1.1. Ventilation

Why it's important: We spend 90% of our time indoors, but outdoor pollutants can get inside. In fact, most of the outdoor pollutants we encounter are indoors. On top of that, we're breathing in at least some odors, chemicals and carbon dioxide every day.

How to improve it: All buildings are required to bring in fresh air, but if you can exceed the required guidelines, you'll reap truly remarkable productivity results. Keep outdoor air intakes away from street level pollutants sources like parking garages and the building's air exhaust. Select filters with a high MERV rating to filter outdoor and recirculated air. ASHRAE recommends MERV 8 for commercial buildings, but LEED requires MERV 13, which can even filter out bacteria.

People impact: People who work in buildings with low ventilation rates report that it's stuffy and unpleasant. But besides being uncomfortable, it can cause symptoms like headaches, fatigue, coughing and sneezing; eye, nose, throat and skin irritation; dizziness, nausea and shortness of breath; and significantly lower cognitive function.

Bottom-line impact: Doubling the acceptable ventilation rate costs just about \$40 per person per year, while the

return on investment is closer to \$6500 per person per year.

1.2. Air quality

Why it's important: Indoor air quality (IAQ) is measured by the volume of pollutants in the air. Common indoor pollutants come from carbon monoxide, particulate matter and volatile organic compounds (VOCs) from printer emissions, paint, cleaning supplies, adhesives, pesticides and more. What's more alarming is how little we know about indoor pollutants. While there are 82,000 chemicals in commercial use, 85% do not have available health data.

How to improve it: Ventilation is a huge part of improving indoor air quality, but you can dramatically reduce indoor pollutants and VOCs just by not allowing certain materials inside. Select green office furnishings, supplies and building materials with low chemical emissions and check for pollutants like lead and asbestos. And keep humidity levels between 30-60% to limit odors.

People impact: Poor indoor air quality can cause sick building syndrome symptoms, such as asthma, allergies and bronchitis. It also contributes to higher rates of absenteeism and lower productivity.

Bottom-line impact: A 2008 study estimated the cost of indoor air pollutant damages to be upwards of \$10 billion in lost productivity, healthcare costs and building damages from moisture and mold. On the flip side, the savings and productivity gains of cleaner indoor air are estimated at \$25 to \$150 billion per year.

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1.3. Water quality

Why it's important: Water is precious, and we could do a better job of maintaining it. About 61% of US drinking water intake comes from the tap, but the nation's service pipes are getting old and can contaminate drinking water. The EPA sets a threshold for maximum contaminants, including lead, organic chemicals and microorganisms. Unfortunately, sometimes these limits aren't met. Additionally, we're wasting a lot of water. In office buildings, 30-40% of water usage comes from restrooms alone.

How to improve it: Test water quality regularly and make sure you're meeting the U.S. Drinking Water Standards at point-of-use – that's out of the tap. WELL certification requires further treatment of drinking water to remove any potential impurities such as sediments, heavy metals, residual chlorine, prescription medications and other organic contaminants. From a waste perspective, leaks are a huge drain on cost (no pun intended). Upgrades and replacement water fixtures can save money in the long term and often have short payback periods.

People impact: Employees likely don't think twice about the water supply in their office, but the health risks of contaminated water are staggering.

Bottom-line impact: Consumption is the least expensive part of workplace water costs, but the way an organization manages its water says a lot about its corporate culture and commitment to the community and employee health.

1.4. Thermal health

Why it's important: Thermal health refers to all aspects of the thermal environment, including air temperature and humidity. Of the nine features of a healthy building, it's easily the most noticeable and often the first to generate complaints.

How to improve it: Naturally, everyone has a different internal temperature, but you have to set the thermostat somewhere. The optimal temperature range for maximum productivity is believed to be between 68 and 74 degrees Fahrenheit. You can work with your landlord to agree on reasonable temperatures in your lease (and save on energy costs when the building is empty).

- Summer occupied: 72°F at 60% relative humidity
- Winter occupied: 70°F
- Summer unoccupied: 82°F
- Winter unoccupied: 60°F

Pay attention to employee comfort and concerns. Some areas might not be heated and cooled properly, so monitor temperature and humidity in real time so you can respond.

People impact: Being too hot or too cold can seriously affect employee accuracy, efficiency and output. In fact, thermal comfort may even be more important to job performance than job stress or job satisfaction. If you're too warm, you can exhibit some sick building syndrome symptoms even if the air quality meets standards.

Bottom-line impact: It is possible to reduce energy

costs without negatively affecting comfort. Blinds present a simple fix for maintaining cooler indoor temperatures, and by removing temperature controls you can avoid costly thermostat wars. A more exciting option is an application that gathers employee feedback and adjusts temperature in real time. One such app actually negotiates with occupants on their preferred temperature and shows them energy savings when they compromise. The algorithm is said to satisfy 70% of occupants while reducing energy consumption by more than 30%.

1.5. Lighting and views

Why it's important: Humans are biologically drawn to windows and natural light. The more we get, the better we feel. It regulates our circadian rhythm, helps with sleep and improves mood. Yet most of us spend the majority of our days indoors.

How to improve it: Move rooms and offices away from the building perimeter to give the most people access to daylight as possible. And reduce glare by situating workstations at a right angle to windows. Lower desk partitions and incorporate glass walls to spread more light throughout the space. Day-lit dining areas give people a good dose of daylight and a walkable, amenity-rich location will encourage them to get out and soak up more sun. Indoors, try blue-enriched light as an alternative for task lighting. It mimics daylight and has a similar effect on office workers. Green views are important, but can be supplemented in the city with plants, water features and art.

People impact: Mal-illumination can throw off your circadian rhythm faster than you think. Too much artificial light at night and not enough daylight during the day can cause a full spectrum of health problems that start with poor sleep and lead to short-term memory problems, and higher risk for weight gain and type 2 diabetes.

Bottom-line impact: Now that more tasks are done on computers with back-lit screens, overhead lighting levels can be reduced from 750-1000 lux (designed for paper-based reading tasks) down to 300-500 lux. Plus more offices feature an open layout, requiring less energy to light. And rather than lighting up each space uniformly, use room controls, occupancy sensors and automatic shut off. Better lighting doesn't have to be more expensive. There's a sweet spot where energy cost savings and employee productivity overlap.

1.6. Noise

Why it's important: In any office soundscape, there will be papers rustling, office equipment humming and conversations nearby. Unfortunately, it doesn't have to be very loud before it cuts into concentration, productivity and even the listener's health. We want people to talk, but how loud is too loud? The U.S. Environmental Protection Agency and many researchers recommend a limit of 45 to 55 dBA for average sound exposure. But others have reported that sounds as low as 55 dBA can cause higher

stress and hypertension if you're hearing it all day. For reference, a normal conversation is about 60-65 dBA.

How to improve it: We cannot eliminate noise completely, but we can do better to control it before it reaches too many ears.

Control noise at the source through a smarter office layout. Create "noisy zones" for the kitchen, the collaboration areas, the copier and other loud activities. Situate these away from individual desks and "quiet zones" as much as possible. These areas should have very little background noise (around 35 dBA) and include private phone rooms to buffer lengthy conversations.

Control noise on its path through sound masking. These systems are installed in the ceiling or under raised floors and they're designed to *add* sound that drowns out human voices. Like white noise, but far less disruptive.

Control noise at the receiver with noise-cancelling headphones. Not our first choice, but they're effective in a pinch.

People impact: Study after study shows that workers in a noisy environment have a harder time concentrating, make more errors and score lower on tasks that require memory or reading comprehension. In a recent survey of more than 1,200 office workers, 53% said ambient noise impacts their concentration and productivity. And with 70% of workplaces featuring an open office layout, the risk of distraction is that much higher.

Bottom-line impact: The more brain power we use to screen out unwanted noise, the less we can use on important tasks. When you're interrupted, it takes a little under 25 minutes on average to re-engage and fully focus on that task. Multiply that by each daily interruption and that's a lot of lost output. Granted, noise is only one type of interruption, but every productivity killer is expensive.

1.7. Moisture

Why it's important: An EPA survey found that 85% of U.S. buildings had suffered water damage and 45% had active leaks when surveyed. Where there's moisture, mold isn't far behind. In buildings, molds reproduce through spores that float through the air we breathe.

How to improve it: Monitor and maintain common sources of moisture in buildings: leaks from plumbing, roofs and windows; flooding; condensation on poorly insulated walls and windows; or wet foundations. Make sure your landlord and facility manager regularly inspect the building and HVAC for evidence of dampness and be prompt in drying out affected areas. As for carpets and drywall, watch closely for signs of mold as they're harder to dry.

People impact: Mold can trigger allergic reactions, asthma attacks and other lung ailments. And because mold pollutes indoor air quality, excessive moisture can lead to lower productivity if unchecked.

Bottom-line impact: A 'sick building' leads to higher

rates of absenteeism, but there are a lot of reasons we get sick. If you're not vigilant about moisture and mold, you could miss diagnose the reasons for low employee turn-out while poor productivity carries on.

1.8. Dust and pests

Why it's important: Dust acts as a vehicle for pollutants. It carries chemicals, allergens, fabric fibers, building materials and bacteria through the air we breathe and then settles all over the surfaces we touch. Even if you remove a chemical source, you can still be exposed to it through chemicals trapped in dust. Likewise, pests carry allergens indoors and the EPA and CDC are raising questions about whether pesticides do more harm than good.

How to improve it: Use high efficiency vacuums to clean filters of dust and allergens and regularly clean surfaces to limit dust and dirt buildup. Focus on preventative pest measures like sealing entry points and removing trash. And, avoid pesticide use wherever possible.

People impact: The majority of human exposure to pesticides occurs indoors, despite being highly toxic if ingested or inhaled. People can develop all sorts of chronic respiratory symptoms from allergens in dust.

Bottom-line impact: As pollutants of indoor air quality, dust and pesticide have a huge impact on a building's bottom line. To reiterate, the savings and productivity gains of cleaner indoor air are estimated at \$25 to \$150 billion per year.

1.9. Safety and security

Why it's important: Many workers still spend the majority of their work week in the office, and while in-office threats may feel unlikely, there's a lot to consider. Natural disasters, medical emergencies, fires, cyber threats and so on. The workplace plays a large role in keeping people safe and secure.

How to improve it: Meet all workplace safety standards, including fire safety and carbon monoxide monitoring. Make sure common areas, stairwells and parking lots are well-lit. Maintain video surveillance, active patrol and formulate a holistic emergency preparedness plan that communicates with occupants. Improve access to training and establish safety performance objectives and metrics.

People impact: Adequate security measures, including well-designed locks and entry systems have been proven to reduce fear of crime. Employees need to feel protected where they work on a day-to-day basis. And they need to trust that employers are equipped to handle an emergency. It may be subconscious, but feeling safe and secure is all part of a greater sense of wellbeing.

Bottom-line impact: A commitment to safety will result in far fewer injuries and preserve worker wellbeing. That translates to reduced costs from employee downtime and fewer costs associated with workplace-related injuries.

The Impact of Tall Buildings

Something to think about is building height, because it does have an impact on how well the workplace interacts with the people that work there. For example, we know that views are important, but they become more valuable as you go up in a building, and there are greater challenges in giving access to everyone in a workplace. Elevator time becomes an issue, particularly if key amenities are on the ground floor. Upper level workplace may need to include more internal amenities. The point is that the building, itself, is an element of the workplace and its features must be included in any strategy to make the workplace healthier.

Why Building Are Getting Smarter

The buzz phrase in commercial real estate today is “smart buildings.” This imply means using advanced technology to optimize operating performance while giving occupants the opportunity to “interact” with building to be happier and more comfortable.

A smart building can address the issues covered in this article by using sensors and artificial intelligence. It is getting easier to make workplaces healthier and more efficient, while making the people inside happier.

Together, all these things lead right to the bottomline ... they make people more productive, and that is the payout employers want.