CINCINNATI 2030 DISTRICT

Occupant Health Guide

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INTRODUCTION

In 2018, Cincinnati became the 21st city to adopt the 2030 District model to create a network of high-performing buildings in Greater Cincinnati and Northern Kentucky. The 2030 District model focuses on three sustainability pillars (Energy, Water, and Transportation) as key to driving greenhouse gas emission reductions. By reducing energy, water, and transportation related carbon emissions, the performance and operation of our buildings is improved. These improvements bring value to the businesses, and to our region.

The Cincinnati 2030 District is an initiative of Green Umbrella, the Cincinnati region’s leading sustainability alliance. Green Umbrella is composed of more than 200 member organizations and over 200 individual members passionate about enhancing the environmental health and vitality of our region. Each of these members supports the organization’s missions to lead collaboration, incubate ideas and catalyze solutions that create a resilient, sustainable region for all.

Cincinnati 2030 District stakeholders, recognizing a longstanding need to bolster health outcomes for the regional workforce, saw the opportunity to pioneer occupant health as an innovative fourth pillar. The growing movement to design buildings that promote well-being and improve the health of building occupants (particularly employees) offers an opportunity to significantly enhance community health outcomes, while increasing the performance and capabilities of organizations and individuals. A healthy, high-performing building network offers an exciting new opportunity for Cincinnati and another way to distinguish the innovative work happening within our community.

With the implementation of the Occupant Health Pillar, the Cincinnati 2030 District also strives to reduce health disparities within the built environment through the implementation of these strategies. Research has shown that health disparities disproportionately affect the health outcomes of minority groups.

In the summer of 2020, the Hamilton County Board of County Commissioners (BOCC) declared racism a public health crisis that affects our entire community. The features outlined in this report are intended to achieve health equity by offering all employees and visitors to the buildings the same opportunity for wellness. We encourage all members to view the recommendations with an equity lens, taking into consideration the variety of social determinants of health that employees face and address them during the implementation of each strategy.

emersion DESIGN and M+A, in partnership with the Cincinnati 2030 District led the development of this 2030 District Occupant Health Guide, which summarizes and compiles data from community health sources and cross-compares the top health issues with the design strategies from the International WELL Building Institute.

In developing the Occupant Health pillar, the Cincinnati 2030 District created a health impact team from existing District members and partners. The team collaborated with the International WELL Building Institute (IWBI), a leading global organization dedicated to transforming buildings and communities in ways to help people thrive.

The Cincinnati 2030 District aligned with the WELL Building Standard to bring the best healthy building practices to the Greater Cincinnati region. The Occupant Health pillar will help establish new resources, enhance local expertise, and develop a new culture of promoting healthy and sustainable building design and operation.

BACKGROUND

The built environment has a tremendous impact on our well-being as we typically spend 90% of our time indoors. Changes to the indoor environment provides an opportunity to greatly improve occupant health. By implementing optimizations building-wide that address public health issues, interior spaces can create a foundation for healthy and equitable environments for all occupants.

In 2014, IWBI created the WELL Building Standard, which has become “the premier standard for buildings, interior spaces and communities seeking to implement, validate and measure features that support and advance human health and wellness.” The WELL Building Standard was developed by integrating scientific and medical research and literature on environmental health, behavioral factors, health outcomes, and demographic risk.
factors that affect health with leading practices in building design, construction, and management.3

The Cincinnati 2030 District occupant health guide is built upon an analysis of local community health needs and healthcare insurance claims data to provide wellness-focused design strategies. The goal is to focus on regional health needs, promote healthy behaviors and incorporate building performance measures to address the regional needs. By understanding this information, Cincinnati 2030 District members and partners (including local companies, organizations, and facility managers) can design and operate buildings that enhance the health outcomes of the local community.

To ensure the Health Pillar goals align with the health needs and priorities of the Cincinnati community and Cincinnati 2030 District members, the Cincinnati 2030 District conducted an analysis of local health data and reports. The primary source of community data was the 2019 Community Health Needs Assessment (CHNA), a collaborative regional report, produced by the Health Collaborative. In collaboration with regional health partners and member hospitals, the Health Collaborative determined the top five health issues for the Greater Cincinnati region. These health issues are categorized into the following: Substance Abuse, Mental Health, Access to Care/Services, Chronic Disease and Healthy Behaviors.4

![Health Concerns in Cincinnati](image)

The CHNA is made up of qualitative primary data gathered from the health community and quantitative secondary data pulled from local health data reporting. The quantitative secondary data culminate in detailed information impacting the health of Southwest Ohio, Hamilton County, and City of Cincinnati residents. This secondary data reveals specific issues afflicting the Greater Cincinnati area in each category.

The Community Health Needs Assessment (CHNA) was developed by the Health Collaborative, a nonprofit multi-stakeholder convening organization, which acts as a neutral forum for all local stakeholders invested in the triple aim of better health, better care, and lower cost across the Cincinnati region. In creating the CHNA, the Health Collaborative combined insight from 20 regional hospitals plus experts from the Cincinnati Health Department, Hamilton County Public Health, Interact for Health, and academic support from Xavier University.

The Cincinnati 2030 District team of members and partners completed a similar analysis of health insurance spending from a leading health insurance company. The most common claims link back to chronic diseases including: high blood pressure, back pain, diabetes, high cholesterol, joint degradation and arthritis, and various lung diseases such as asthma. Metabolic and musculoskeletal conditions are the top conditions in adult populations, according to the health insurance providers data. Obesity is also noted as an underlying risk factor for both of these conditions. Each of these conditions is impacted by and can be mitigated through building design and policy strategies.

Additional information was gained using public data from CincyInsights, the City of Cincinnati’s official visual open data portal, and Ohio’s national rankings for various health indicators. Each of these sources reinforce the findings from the CHNA and the available health claim data.

Understanding these data sources allowed the Cincinnati 2030 District Health Impact Team to prioritize areas of need for the local community. With these insights, the Health Impact Team was able to align local health impacts with design features and strategies from IWBI’s WELL Building Standard. The recommendations found in the following sections of this guide are the result of this analysis as they relate to Cincinnati’s most prevalent health needs.

While the Cincinnati 2030 District focus is on modifications to the buildings, it is important to recognize that operational and organizational policies supporting the building features should be considered to increase the impact of occupant health beyond physical strategies.
COVID-19 CONTEXT

The IWBI has identified and grouped select, applicable strategies from the WELL Building Standard v2 (WELL v2) around key themes that reflect how organizations can approach prevention and preparedness, resilience and recovery in relation to COVID-19 and other respiratory infections, from enhancing air quality to supporting mental health. IWBI and other entities such as ASHRAE continue to update recommendations about building operations, based on research. The Occupant Health Guide remains focused on general health outcomes, and is not specific to COVID-19.

GUIDELINE PURPOSE

The Cincinnati 2030 District’s Occupant Health Guide was developed to educate and provide information to our members about the impacts the built environment has on our health. Understanding the built environment’s impact provides benefits to both building users and owners. This will also act as a guide for building owners and managers to explore various features to achieve the health portion of the Cincinnati 2030 District commitment.

We have honed in on the most pertinent features from the WELL v2 standard and integrated them into this document, crafting it to meet the specific health needs of this region and our building members’ goals. Please visit the IWBI website for the complete list of WELL features.

This guide offers 14 optimizations that are adapted from the WELL Building Standard. We suggest that a building member select and implement at least seven optimizations to achieve the goals of the Cincinnati 2030 District.

Due to the variety of member types (owner, manager, tenant, developer etc.) some of the features have been economized to ensure the suitability with the vast majority of properties.

Each of the WELL concepts and optimizations selected for the Cincinnati 2030 District are detailed in the following sections of this guide as well as further explained in the appendix. We encourage the building members to strategize and plan to implement seven optimizations, and also to explore the full breadth of the WELL Building Standard.

Throughout this document, each major concept contains four sections:

- The Global Impact section provides a holistic overview of the importance of the category.
- The Cincinnati Impact section provides a synopsis of the CHNA analysis to educate users on how the features were selected.
- The Occupant Impact section focuses on providing decisions makers with the health benefits associated with each of the categories and features.
- The Optimizations provide the specific health-related building enhancements the Cincinnati 2030 District has recommended.

Additionally we encourage our members to utilize a third-party developed survey or assessment to understand organizationally specific health concerns and ensure the most benefit for each member's occupants.
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Health Concern Category (Key)

- Substance Abuse
- Mental Health
- Access to Care
- Chronic Disease
- Health Behaviors
HEALTHY BUILDINGS STRATEGY

AIR

GLOBAL IMPACT

Air pollution is a growing national and global issue contributing to respiratory and allergic diseases, including asthma, chronic pulmonary disease, and pneumonia. Research studies continue to present evidence of the impact that air quality has on productivity, as well as physical and cognitive development. With the average person inhaling approximately 15,000 liters of air each day, paying attention to the quality of that air should be a priority for our local community.6

The U.S. Environmental Protection Agency (EPA) established national ambient air quality standards for six of the most common air pollutants: ground-level ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and particulate matter (PM10, PM2.5).7 While all cause adverse health effects, particulate matter and ground-level ozone monoxide present the most persistent challenges. These pollutants reside outside, but can also concentrate inside buildings at high levels.

The World Health Organization estimates that air pollution contributes to seven million deaths per year.8

Particulate matter exposure can be particularly problematic, leading to variable degrees of respiratory-related illnesses. The main two types of particulate matter of concern are larger PM10 (dust, pollen, mold, etc.) and smaller PM2.5 (combustion particles, organic compounds, metals, etc.) particles. The larger particles can block airways while smaller particles travel deep into the lungs, entering the bloodstream and leading to various cardiovascular issues. This can lead to significant damage to the small airways of the lungs, increased risk of death from cardiovascular disease, damage to the nervous system, reproductive disorders, and cancer.

Ground level ozone, formed from industrial activity, is a leading cause of asthma and other common breathing disorders.

In addition to the common air pollutants mentioned above, there are other air pollutants known to cause cancer and other serious health effects. These pollutants include benzene (from gasoline), perchloroethylene (common in dry cleaning facilities), and methylene chloride (solvent and paint stripper). Other hazardous air pollutants include dioxins, asbestos, toluene, and metals such as cadmium, mercury, chromium, and lead compounds.9

Pollutants continuously fluctuate in concentration in any indoor or outdoor environment. Some pollutants are immediately recognizable by their impacts on our body such as throat irritation or watery eyes. Other pollutants causing respiratory diseases, heart disease, and cancer do not show up until years after exposure.9

CINCINNATI IMPACT

The Cincinnati region ranks among the worst in the U.S. for year-round particle pollution, according to the American Lung Association. This poor ranking is reinforced by the Southwest Ohio Air Quality Agency, whose 2019 reporting shows that the Cincinnati region continues to exceed National Ambient Air Quality Standards for ozone. The agency’s ongoing monitoring reveals that on most days throughout the year, local air quality falls below a good standard, typically in the Moderate or Unhealthy for Sensitive Groups category. Within the Tri-State area, data indicates that lower respiratory diseases are the fourth leading cause of death.8 Cincinnati’s Community Health Needs Assessment ranks air pollution among the key factors contributing to chronic disease for residents. Although we spend 90% of our time indoors,2 poor outdoor air quality reduces the overall air quality and makes occupants exposed to poorer indoor air quality. Generally, it has been found that indoor air quality can be 2-5 times worse than outdoor air quality.10
**OCCUPANT IMPACT**

While building owners and operators cannot control outdoor air quality, they can significantly impact the quality of air occupants breathe within a building. Operational strategies that consider air quality monitoring, ventilation rates, material selection, and proper filtration, are key drivers for ensuring quality indoor air.

New research demonstrates that enhancing indoor air quality can lead to improved health outcomes and individual performance. In a seminal study by the Harvard School of Public Health on cognitive effects and productivity, researchers showed that **doubling ventilation rates led to a doubling of cognitive functioning scores**.11 This and other research shows that enhancements to air quality, which can be made as part of routine building improvements, offer the chance to fundamentally improve the performance of employees and other building occupants.

**COVID-19 Response:** Amidst the COVID-19 pandemic, the attention on indoor air quality has substantially increased as companies and building operators work towards providing safe environments for employees. Enhanced ventilation along with air filtration can diminish pollutants in the air.

More efficient air filters can have a dramatic effect on the amount of pollutants occupants breath in. Studies from an infiltration review indicate commercial buildings, which typically use Minimum Efficiency Reporting Value (MERV) 8 filters, have an estimated PM2.5 removal efficiency of 50%. By comparison, most LEED buildings use a MERV 13 filter which has a removal efficiency of 90%.11 The higher the MERV rating, the more particles and contaminants are removed from the air. When properly calibrated with the mechanical system, this can have profound impacts on indoor air quality and occupant health. Further, increases in air filtration media can reduce the spread of communicable diseases. A research study from the Harvard School of Public Health found that increasing PM2.5 by only 1 µg/m³ is associated with an 8% increase in the COVID-19 death rate.12 Between 2016 and 2018 the annual increase of PM2.5 in Cincinnati was between 1 and 1.5 µg/m³.13 The optimizations presented for air quality address this issue and offer ways to significantly improve indoor air quality.

**STRATEGIES**

- Increase Ventilation Rates
- Maintain 850 ppm of CO2
- Install air filters with a minimum rating of MERV12

**OPTIMIZATIONS**

**Enhanced Ventilation**
This Optimization requires implementation of advanced ventilation strategies that can secure higher air quality levels and thus benefit human health and productivity.

**Enhanced Air Quality**
This Optimization requires projects to provide enhanced air quality levels that have been linked to improved human health and performance.

**Air Filtration**
This Optimization requires projects to assess air filtration media that have been linked to improved human health and performance.
HEALTHY BUILDINGS STRATEGY

WATER

GLOBAL IMPACT

Making up nearly two-thirds of the human body, water is a vital transportation system of nutrients and waste. Water also plays a fundamental role in protecting organs, normalizing blood pressure, stabilizing the heartbeat, cushioning joints, and regulating body temperature.

Ensuring the availability of clean drinking water is therefore fundamental to human health. In order to maintain adequate amounts of water within our bodies, the U.S. Institute of Medicine recommends “women consume approximately 2.7 L (11.5 cups) and men 3.7 L (15.5 cups) of water per day.” Despite the scientific evidence and consensus about the need for hydration, research reveals that one third of Americans do not drink an adequate amount of water.

One of the key factors associated with adequate water consumption is the real or perceived quality of drinking water. Negative perceptions of water quality within buildings is likely to reduce water consumption. Less water consumption is also associated with an increase in the consumption of sugary beverages, which exacerbates the growing obesity epidemic.

In developed countries, improvements in water distribution infrastructure have reduced the spread of pathogens related to infectious diseases. However, there has been an increase in risk from industrial, agricultural, and pharmaceutical sources. The U.S. EPA has warned that threats to drinking water are increasing, and that communities can no longer take the quality of drinking water for granted. Due to this concern, it is important that contaminants are monitored and mitigated at the source and the point of consumption.

CINCINNATI IMPACT

In Cincinnati, most of the water consumed comes from the Ohio River or from the Great Miami Aquifer. The EPA has deemed both of these water sources as highly susceptible to contamination. To address these contamination risks, Greater Cincinnati Water Works uses state-of-the-art water treatment technologies (including granular activated carbon filtration and ultraviolet light as a disinfectant) to treat the water to exceptional levels that meet and exceed the EPA’s water quality requirements.

Despite the high quality of water leaving the water treatment plants, Cincinnati’s aged water pipe infrastructure is vulnerable and could negatively impact the water quality consumed by residents. Water quality at the point of use can be impacted by contaminants picked up along the way through the water pipes. Common contaminants include lead, arsenic, mercury, and many others. In fact, the Center for Disease Control states, “The presence of contaminants in water can lead to adverse health effects, including gastrointestinal illness, reproductive problems, and neurological disorders. Infants, young children, pregnant women, the elderly, and people whose immune systems are compromised, may be especially susceptible to illness from some contaminants.” Thus, it is critical that we appropriately address water quality issues within our buildings.
**OCCUPANT IMPACT**

Staying hydrated is important at all times. Chronic dehydration can lead to high blood pressure, kidney stones, digestive issues, and even seizures. Drinking enough water is especially important when an individual is trying to increase their immune system response. Since water helps move nutrients and eliminate toxins from your body, it can help an occupant fight infections and viruses better. Proper hydration has also been linked with increased productivity.

The taste, quality, and accessibility of water is key to proper consumption. If water does not taste good, or if individuals are situated too far from a quality water source, they may not drink enough water or instead select less healthy sugar-sweetened beverages, which are detrimental to health. By integrating site based water quality monitoring and promoting the availability and quality of drinking water, we support individuals to meet minimal water consumption standards and promote good health.

**STRATEGIES**

- Provide Water Quality Information to Occupants
- Perform quarterly tests
- Filter Drinking Water

**A third of Americans do not drink an adequate amount of water.**

**OPTIMIZATIONS**

**Water Quality Consistency**
This Optimization requires use of filters on drinking water dispensers or testing of key water quality parameters at a more frequent interval.

**Ensure Drinking Water Access**
This Optimization requires readily-available and maintained dispensers for drinking water.
HEALTHY BUILDINGS STRATEGY

NOURISHMENT

GLOBAL IMPACT

Nutrition is a critical component to an individual’s health. Poor nutrition contributes to non-communicable diseases and is a modifiable risk factor for many preventable illnesses. Despite the risks, a vast amount of Americans do not consume (or do not have access to) the daily recommended amount of fruits, vegetables, and whole grains. Due to cost restraints, convenience, and taste, many diets are overly processed and high in sodium, sugar, and fat. Maintaining a healthy diet has a profound impact on health. “A diet rich in vegetables and fruits can lower blood pressure, reduce the risk of heart disease and stroke, prevent some types of cancer, lower risk of eye and digestive problems, and have a positive effect upon blood sugar, which can help keep appetite in check.” Conversely, poor dietary practices have a negative impact, leading to diet-related illnesses, including cardiovascular disease, high blood pressure, type-2 diabetes, and some cancers.

Nutritional deficiencies contribute to more than 1.2 billion Disability Adjusted Life Years (DALYs) to the global burden of disease, while overweight and obesity were estimated to cause over 3 million deaths worldwide.

While there are many factors that influence nutrition in our daily lives, the built environment and the communities we live in can empower us to make healthy choices and promote healthy eating behaviors. Food purchase and consumption decisions, dietary patterns, and food preparation practices all represent avenues for health improvement. Individual change has been found to occur when environmental conditions and influences are aligned to support individual behaviors. Thus, the built environment must be aligned with organizational policies to effect change. As an example, it is difficult for a company to encourage bicycling to work if it requires crossing busy roads or highways, or if the company does not provide bike racks. Similarly, it is difficult to encourage healthy food options if the company does not provide space within the building for healthy food offerings to occupants.

The global nature of the food system also has a significant impact on the health of the food we eat. In the contemporary food chain, most food travels an average of 2,000 miles before it is consumed, which has a negative impact on both the quality and nutrition of the food (not to mention the environmental impact). By encouraging local food production, we can address several global issues at once.

CINCINNATI IMPACT

Ohio ranks 36th out of 50 states in chronic disease issues according to America’s Health Rankings. The CHNA supports this indicator with data showing chronic disease being among the top five health concerns in Southwest Ohio and Hamilton County. Additionally, health insurance claims data indicates hypertension and metabolic disorders are among the most common claims made by local employees.

Given that poor nutrition contributes to non-communicable diseases and is a modifiable risk factor for chronic diseases and metabolic disorders, one can easily see that encouraging healthier food choices in our work environments can have a positive impact on occupant health.

Obesity was estimated to cause over 3 million deaths per year worldwide.
Occupant Impact

When examining the link between nutrition and preventable illnesses, there is a compelling case to advocate and provide opportunities for healthy eating behaviors in our buildings. Cincinnati 2030 District members have an opportunity to advocate and provide agency in enhancing healthy eating behaviors for building occupants within the district.

By enhancing healthy food access in our facilities, individuals have the option to choose healthier, sustainable, and higher-quality food. Our members can go further by considering policy related strategies such as nutritional education or food preparation, which are also prioritized by the WELL Building Standard.

Fresh produce is a great way to improve nutrition and health. Having access to fresh produce while at work can be a challenge.

One way to enhance healthy fresh food access is partnering with local a Community Supported Agriculture (CSA) farm. This will provide fresh local produce directly from the farm to the building occupants. By partnering with local growers members will have access to the freshest produce and support the local economy.

Strategies

- Provide CSA vouchers to incentivize employees to purchase directly from local farms.
- Source local foods for onsite cafeterias.
- Provide spaces for local farmers to show and sell their produce.

Click here to view the full list of requirements

Optimizations

Local Food Environment
This Optimization requires building owners and managers to provide access to healthy, local food at regular intervals on site, or as a benefit, or integrated into the prepared food provided on site.
MIND

GLOBAL IMPACT

Mental health is important across all life stages and is crucial for the physical and social well-being of individuals. Well-being is the state in which individuals are able to embrace their full potential, cope with stress, work, and contribute to society.26

Mental health issues are more prevalent than most people realize, with over 30% of adults expected to experience a mental health condition during their lifetime.27 Approximately two-thirds of individuals experiencing common mental health conditions are employed, suggesting that the impact of mental health in the workplace is profound.28

There is an important relationship between mental and physical health. Often, one impacts the other. For instance, chronic stress is associated with increased risk of depression, cardiovascular disease, diabetes, and upper respiratory infection.29 People with mental health conditions experience a mortality rate more than two times higher than the general population. This can reduce median life expectancy by 10 years.30

The built environment can help mitigate these adverse mental health outcomes by supporting cognitive and emotional health, as well as buffer stress, reducing the chance of burnout.31 This can occur through a variety of prevention and treatment efforts, such as providing restorative spaces and enhanced access to natural elements.

CINCINNATI IMPACT

The CHNA found that mental health was the second highest concern throughout the region. Specifically, mental health, in regard to depression and anxiety. Based upon the responses of health departments, the City of Cincinnati is prioritizing mental health as a focus area. By providing calming environments and access to nature we can support occupants overall wellbeing.
On average, salaries and benefits make up 90% of an organization’s operating expenses. By reducing acute and chronic stress which suppress immune functions, fewer employees will be susceptible to illnesses, absenteeism, and reduced focus. In addition to the direct impact on the company bottom line, companies are showing their employees that their health and well-being is valued and protected, which increases talent retention. Access to rejuvenation spaces provides the opportunity for employees to take mentally restorative health breaks and reduce stress levels. These elements coupled with organizational policies on mental health and supportive company cultures can reduce the anxiety sometimes encountered within the work environment.

**STRAATEGIES**

- Provide restorative indoor spaces
- Enhance work environment through onsite vegetation
- Encourage breaks in nearby parks
- Bring nature indoors through planters

**OPTIMIZATIONS**

**Restorative Spaces**
This WELL feature requires the availability of spaces that promote restoration and encourage relief from mental fatigue and stress.

**Enhanced Access to Nature**
This WELL feature requires the integration of nature and natural elements into the interior and exterior of the project, as well as the provision of natural views and nearby nature, such as vegetation or water features.

Click here to view the full list of requirements.
Proper lighting can be instrumental for both mental and biological health. Sleep cycles of the human body are regulated by a specific cadence know as circadian rhythm. Light is the main driver of visual and circadian systems allowing humans to maintain the natural balance of wakefulness during the day and sleep at night. When the natural circadian rhythm of daylight is disturbed (from non-circadian light exposure or lack thereof), it can impact sleep cycles, hormone levels, and the functioning of internal organs, including the brain. Disruption or desynchronization of the circadian rhythm has been linked with obesity, diabetes, depression and metabolic disorders.\textsuperscript{34}

By being exposed to certain frequencies of the light spectrum, our eyes pick up a signal to suppress melatonin causing a rise in serotonin, energizing us.\textsuperscript{35} Natural daylight from the sun contains a distribution of light across the entire light spectrum. On the contrary some types of artificial lighting lack the critical nanometer frequency linked with melatonin suppression. This prevents building occupants from receiving the appropriate level of stimulation, creating a constant twilight zone where our bodies cannot distinguish between going to sleep or waking up.

Exposure to bright light at night is associated with circadian phase disruption, which in turn can cause negative health effects, such as breast cancer and metabolic and sleep disorders.\textsuperscript{36,37}

CHNA’s 2019 report shows that more than a third of adults sleep less than seven hours per night, and national reports show over 30\% of employed adults reported six or fewer hours of sleep per day.\textsuperscript{38} Regularly sleeping fewer than seven hours per night is associated with a number of chronic, adverse health outcomes and impairs immune functions.\textsuperscript{39} A study in Europe reviewed the economic costs of insufficient sleep and found that people who sleep less than 6 hours lose an average of 6 days per year of work time compared to someone who sleeps between 7 and 9 hours.\textsuperscript{40} As a result, ensuring sufficient sleep is among the top ten healthy habits expressed within the CHNA.

*Chronic sleep deprivation has been linked with obesity, diabetes, depression and metabolic disorders.\textsuperscript{34}
OCCUPANT IMPACT

Maintaining a balanced circadian rhythm is important for maintaining health and ensuring optimal productivity. As a result of spending more than 90% of our time indoors, most people are not exposed to the optimal amount of daylight. This disrupts our circadian cycle and impacts our quality of sleep. As such, healthy indoor light exposure during working hours is even more important. In fact, “disruption of circadian rhythm has been linked with obesity, diabetes, depression and metabolic disorders.” 34 The effect of all this ends up being sleepier occupants who are less focused and less productive.

There are two methods to reduce circadian rhythm disruption in the indoor environment. First is to design spaces with as much natural light access as possible. Second, when natural light is not available implementing advanced lighting technology that focuses on the specific wavelengths required to enhance circadian rhythm in occupants. By promoting natural light and circadian lighting strategies occupants can obtain the benefits and enhancements to their circadian rhythm.

STRATEGIES

- Shift workstations to take advantage of daylight
- Shift workstations to encourage views to the exterior
- Educate occupants about the impact of circadian rhythm
- Install circadian lighting in spaces where no daylight reaches

OPTIMIZATIONS

Circadian Lighting Design
This Optimization requires projects to provide users with appropriate exposure to light for maintaining circadian health and aligning the circadian rhythm with the day-night cycle.

Enhanced Daylight Access
This Optimization requires projects to design spaces to integrate daylight into indoor environments so that daylight may be used for visual tasks along with electric lighting. It also provides individuals with a connection to outdoor spaces through view windows.
HEALTHY BUILDINGS STRATEGY

MATERIALS

GLOBAL IMPACT

Many building materials and furnishings have been shown to have negative impact on occupant health. Selecting non-toxic and less toxic building materials, furnishings, and other materials can improve occupant health. Volatile Organic Compounds (VOCs) are the largest group of chemicals that impact the indoor environment. These chemicals are found in a variety of source materials including insulation, paints, coatings, adhesives, furniture, wood, and flooring materials. The chemical pollutants of these materials have a wide impact on health effects ranging from respiratory irritation to cancer. Just as concerning, it is estimated that 95% of widely used chemicals do not contain information on the impact to human health.41

Chemicals routinely used within buildings can also cause adverse health impacts on occupants. Extensive studies have shown that commercial cleaning products can be hazardous to human health and the environment. Alkylphenol ethoxylate, a common ingredient in surface cleaning products, is associated with endocrine disruption, which can cause cancers, birth defects, and other developmental disorders. Vapors and gasses from cleaning products contain irritants for eyes, nose, throat and lungs. These can trigger asthma attacks.

CINCINNATI IMPACT

Cincinnati’s older building stock has an increased potential of containing legacy chemicals such as lead, asbestos, and mercury. These chemicals were introduced into building materials before their health impact was fully understood. These chemicals are toxic and accumulate within people at a higher rate than the body can excrete them, sometimes causing deadly health effects. The effects of lead poisoning are often irreversible and may lead to mental retardation, increased disruptive behavioral issues, and lower lifelong earning potential.42 Understanding how materials and legacy chemicals increase toxic burdens is especially important when selecting building materials and cleaning products.

Beyond building materials, cleaning products are also a source of toxicity in the work place. Per OSHA certain chemicals in some cleaning products can cause asthma or trigger asthma attacks.44 Further mists, vapors/or gases from cleaning products are know to cause burning eyes, sore throat, coughing, trouble breathing and wheezing.44 These side effects are harmful to individuals performing the cleaning and some can linger depending of ventilation systems. Providing protective equipment for cleaners, training, safe storage, limiting chemical use, and proper ventilation are key ways to reduce the negative health effects of chemical in cleaning products.
**OCCUPANT IMPACT**

The goal with these recommendations is to provide emission and content thresholds for building materials and cleaning products to ensure good indoor air quality. By establishing cleaning protocols and other emission control strategies, building managers can support the health outcomes of employees, visitors, and janitorial professionals within a space.

**COVID-19 Response:** Maintaining a clean environment helps mitigate the transmission of bacteria and viruses. The building owner should ensure that strict cleaning protocols are adhered to in order to reduce bacteria concerns as well as mold and moisture impacts. Cleaning products should be toxin and irritant free.

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**STRATEGIES**

- Assess cleaning products are of low hazard risks
- Assess training and cleaning protocols
- Review product storage for safety
- Update purchasing policies to require material compliance with CDPH Standard Method v1.1-2010 for furniture, flooring, and insulation

---

**OPTIMIZATION**

**Cleaning Products & Protocols**
This Optimization requires the restriction of hazardous or harmful ingredients in soap, shampoos, cleaning, disinfection and sanitization products as well as program training for staff, a plan for the maintenance of a cleaning schedule, and a protocol for entryway cleaning and maintenance.

**Long-Term Emissions Control**
This Optimization feature requires testing and adherence to emission thresholds for newly purchased furniture and furnishings, flooring and insulation.

*Click here to view the full list of requirements*
HEALTHY BUILDINGS STRATEGY

MOVEMENT

GLOBAL IMPACT

A key element of a healthy lifestyle is exercise and regular movement. A recent review found that six to eight hours of sitting per day increased the risk for mortality and cardiovascular disease. Physical inactivity and sedentary lifestyles, defined by low-intensity, low-effort activities (such as sitting), are linked. Individuals who report low physical activity levels are more likely to report higher levels of sedentary activity than their more active counterparts. For a long time, the built environment was designed to demand less movement and require more sedentary activities from its occupants and visitors. Within the last decade, a revolution has occurred in building and urban scales to encourage more active living and physical activity.

Another factor caused by extend time sitting is musculoskeletal disorders. One leading focus of research is the topic of ergonomics. Multiple research studies show that poor workstation environments lead to negative impacts on musculoskeletal systems including lower back pain and neck pain. This evidence is supported by local health insurance claims data which indicated that 12% of medical spend comes from these issues. Other research shows these disorders contribute significantly to productivity losses.

CINCINNATI IMPACT

Physical inactivity impacts many of the issues found in the CHNA. This is supported by local health insurance claims data and Ohio health rankings. Inactive lifestyles contribute to the rise in premature mortality and chronic diseases such as diabetes, cardiovascular disease, depression, stroke, and some forms of cancer.

Effects of Prolonged Sitting

Physical Inactivity for Average Work Day

6-8 HOURS

1/4 - 1 HOUR

8 HOURS

1/4 - 1 HOUR

1+ HOURS
OCCUPANT IMPACT

By incorporating more active and ergonomic spaces, building managers and employers can ensure greater movement and musculoskeletal support for better overall health. Recent design trends are supporting this health need. More functional office environments encourage movement into different workspaces throughout the day. Ergonomic workstations that allow employees to move desk and chair height not only enable greater comfort but support the need for continued movement. Education and support incorporated into the company culture is also a critical component of healthy movement. If the company culture does not encourage employees to get up and move around throughout the day, to use a standing desk, or take breaks outside, then employees will not feel comfortable taking advantage of these benefits. Sharing information with employees and occupants allows a broader understanding of the need to incorporate movement into the day and the associated health benefits.

STRATEGIES

• Educate Occupants on ergonomics
• Assess Need for Ergonomic Chairs
• Assess Need for Ergonomic Desks
• Provide Dedicated Activity Spaces
• Provide Physical Activity Equipment

OPTIMIZATIONS

Visual and Physical Ergonomics
This Optimization requires projects to provide basic ergonomic workstation furnishings for desk- and standing-based workstations and education about workplace risk factors, signs and symptoms of discomfort, ergonomic policies and available furnishings.

Physical Activity Spaces and Equipment
This Optimization requires projects to provide access to a dedicated space for cardio and strength training exercise.
HEALTHY BUILDINGS STRATEGY

CHECKLIST

Track completed, on-going, and future features specific to your building or tenant space. Include this checklist as part of the reporting process to the Cincinnati 2030 District.

Reminder: Select a minimum of seven optimizations to meet Cincinnati 2030 District commitment.

<table>
<thead>
<tr>
<th>Optimizations</th>
<th>Achieved</th>
<th>In Progress</th>
<th>Future</th>
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<td>1. Enhanced Air Quality</td>
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<td>2. Enhanced Ventilation Design</td>
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<td>3. Air Filtration</td>
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<td>4. Drinking Water Quality Management</td>
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<td>5. Drinking Water Promotion</td>
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<td>6. Local Food Environment</td>
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<td>7. Restorative Spaces</td>
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<td>13. Ergonomic Workstation Design</td>
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<td>14. Physical Activity Spaces and equipment</td>
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</table>
HEALTHY BUILDINGS STRATEGY
AIR REQUIREMENTS

ENHANCED AIR QUALITY CRITERIA (Adapted from WELL v2, A05)

• Maintain Air Contaminant Levels at or below the following:
  • PM2.5: 12 μg/m³
  • PM10: 30 μg/m³
  • Carbon Monoxide: 6 ppm
  • Total VOC: <400 μg/m³

VERIFICATION METHOD

• Option 1: Submit air testing results annually. Testing preformed during normal occupancy hours and representative occupancies loads. (Testing requirements: Refer to Air Testing Guidelines located within this report.)
OR
• Option 2: Provide link to continuous air quality monitoring dashboard

ENHANCED VENTILATION DESIGN CRITERIA (Adapted from WELL v2, A06)

• Option 1: Maintain levels of Carbon Dioxide at or below 850 ppm.
OR
• Option 2: Increase Air Supply by 30% beyond ASHRAE 62.1-2010 Standards.

VERIFICATION METHOD

• Option 1: Submit air testing results annually. Testing preformed during normal occupancy hours and representative occupancies loads. (Testing requirements: Refer to Air Testing Guidelines located within this report.)
OR
• Option 2: Provide a ventilation report verified by an engineer showing the 30% increase in air supply.

AIR FILTRATION CRITERIA (Adapted from WELL v2, A12)

• Incorporate a minimum air filtration level with an 80% PM2.5 removal efficiency through minimum MERV 12 filters

VERIFICATION METHOD

• Submit a photograph of installed MERV filters and purchase order or invoice of filter. Include the operational policy of MERV filter replacement schedules.
General Guidelines: Unless otherwise noted, these rules apply to all parameters within the Air category.

Test Locations & Conditions
- Testing should be conducted under regular project conditions. For example, for naturally ventilated spaces, the windows should be open during testing.
- The Performance Testing Agent should note whether the HVAC system (or any ventilation or air treatment method) is on or off during the data collection period.
- Sampling points must be representative of typical occupiable areas within the sampling zone and located where occupants would typically be situated (e.g., at workstations).
- Sampling points must be at the following heights above the finished floor:
  - 0.1-1.7 m [3.6-5.6 ft] at locations where occupants would typically be seated or standing.
  - Sampling points must be at least 1 m [3.3 ft] away from walls, doors, windows, air supply/exhaust outlets and any occupants that are present during testing. To the extent possible, sampling points should be at least 5 m [16.4 ft] from exterior doors.

Test Method
- Minimum of one continuous hour (10 minutes of acclimation time followed by 50 minutes of measurement time), with measurements recorded at least once every minute.

Test Quantity

<table>
<thead>
<tr>
<th>Table 2: Number of Sampling Points Required Based on Project Area and Number of Floors</th>
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<tbody>
<tr>
<td><strong>TOTAL PROJECT AREA</strong></td>
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<td>Floors</td>
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<tr>
<td>16-20</td>
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<td>&gt;20</td>
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</tbody>
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*For Core & Shell projects, to determine the number of sampling points use the project’s total area. In addition to testing in non-leased areas, the Performance Testing Agent must have access to test within tenant spaces (either before or after fit-out), representing at least 10% of the leased area.

PM2.5 and PM10: See General Guidelines for Test Locations & Conditions and Quantity.

Test Method
- See General Guidelines
- Measurement method: real-time direct reading instrument.

Reporting & Compliance
- Compliance is based on the median value collected during the measurement time at each sampling point compared against the requirement + a tolerance of 20%.
Device Requirements

- Instrument type: light-scattering airborne particle counter
- Measurement range: 1-1,000 \( \mu \text{g/m}^3 \)
- Instrument accuracy (at the size specified by the manufacturer): \( \leq 15\% \)
- On-screen resolution: 1 \( \mu \text{g/m}^3 \)
- Lower detectable limit: 1 \( \mu \text{g/m}^3 \)
- Reporting interval: one minute maximum
- Calibration: instrument must be calibrated within the manufacturer’s specification (maximum interval: one year), and the calibration record (i.e., the measurement result obtained during calibration) must be traceable to a National Metrological Institute, such as NIST, NPL or PTB.

**Total VOCs:** See General Guidelines for Test Locations & Conditions and Quantity.

**Test Method**

- See General Guidelines
- Samples are taken through an active collection in accordance with ISO 16000-6, ASTM D5197 or EPA TO-17.
- A minimum of one exposure field blank sample per day of sampling must be prepared and analyzed.

**Device Requirements**

- Laboratory materials and/or samplers must be prepared according to the referenced testing methodology and meet the referenced testing methodology requirements.
- Air sampling pumps utilized in active collection measurements must be capable of meeting the airflow rates prescribed by the referenced testing methodology (if applicable).

**Carbon Monoxide:** See General Guidelines for Test Locations & Conditions, Quantity, and Method.

**Reporting & Compliance**

- Compliance is based on the median value collected during the measurement time at each sampling compared with the requirements.

**Device Requirements**

- Real-time direct reading instrument.
- Measurement range: 0-25 ppm
- Instrument resolution: 0.1 ppm
- Lower detectable limit: 0.1 ppm
- Calibration: instrument must be within the calibration period

**Nitrogen Dioxide:** See General Guidelines for Test Locations & Conditions, Quantity, and Method.

**Reporting & Compliance**

- Compliance is based on the median value collected during the measurement time at each sampling point compared against the requirement + a tolerance of 20%.

**Device Requirements**

- Measurement range: 0-500 ppb
- Lower detectable limit: 5 ppb
- Calibration: instrument must be within the calibration period
HEALTHY BUILDINGS STRATEGY

WATER REQUIREMENTS

DRINKING WATER QUALITY MANAGEMENT CRITERIA (Adapted from WELL v2, W05)

- Maintain water contaminant levels at or below the following for drinking water dispensers:
  - Turbidity: 1.0 NTU
  - pH between: 6.5 and 9.0
  - Total Dissolved Solids: 500 mg/L
  - Total Chlorine: 5 mg/L
  - Residual Chlorine: 5 mg/L
  - Total Coliforms: Not detected in a 100 mL sample
  - Lead: 10 mg/L
  - Copper: 2 mg/L

- Display water quality information near drinking water sources.

VERIFICATION METHOD

- Submit annual water testing reports.
- Submit photographs of displayed water quality information near drinking sources.
- Sampling Occurs at the following locations:
  1. The water dispenser that is closest to the pipe that delivers water into the project, before any point-of-entry water treatment system where possible.
  2. For projects with more than two floors, sampling occurs at a drinking water dispenser on the highest floor and the dispenser located farthest from the point-of-entry location. Samples must be taken with point-of-use filters or other water treatment devices bypassed or removed, if present.
  3. For projects of 12 or more floors, one additional drinking water dispenser for every 10 floors.

DRINKING WATER PROMOTION CRITERIA (Adapted from WELL v2, W06)

- Provide a minimum of one drinking water dispenser (minimum one per floor) located within a 100 foot walking distance of all regularly occupied floor areas and in all dining areas.
- Water delivered by dispensers is directly piped through the building’s water supply or is stored in containers designed for refilling.
- All newly installed drinking fountains are designed for water bottle refilling.
- Mouthpieces/outlets, protective guards, aerators (if present), basins and touch points are cleaned on a daily basis.
• Provide a floor plan drawing of water dispenser locations and regularly occupied floor areas along with the walking distance noted between these points.
• Provide photographs of all drinking water dispensers within the space.
• Provide a copy of the operational maintenance schedule with cleaning protocols for drinking fountains highlighted.
• Provide photographs (if applicable) of stored water containers for dispenser refilling.
HEALTHY BUILDINGS STRATEGY

NOURISHMENT REQUIREMENTS

LOCAL FOOD ENVIRONMENTS CRITERIA

Choose an option to implement on-site:
1. Provide direct staff access to a Community Supported Agriculture (CSA) Voucher program.
2. For on-site dining services source 15% of food purchased, from farms located within 250 miles of building address.
3. Provide a dedicated location for weekly farm drop-off and pickup, accessible to all eligible occupants.

VERIFICATION METHOD

Voucher Program
• Provide verification of agreement with CSA farm.
  • Employer to pay 60% and employee to pay 40% of associated CSA program fees.
• Pickup and drop off areas either on-site or off-site to be agreed upon with CSA farmer.
• Provide a sample email distribution to promote and encourage CSA participation.
• Provide photographs of fliers or other notification methods of the CSA program.

Dining Facilities Program
• Provide contract or sourcing agreement between local farm(s) and dining services.
  • 15% of food purchased (by cost) to be sourced from local farms within 250 miles of building address.
• Provide educational information about local food sourcing within dining facility.
• Copy Cincinnati 2030 District staff on email distribution.

On-Site Pickup/Drop Off Program
• Connect building occupants with CSA farm(s) to facilitate program participation.
• Provide a floor plan drawing of dedicated drop-off area for CSA farm.
• Provide a photograph of CSA farm drop-off area.
• Provide a sample email distribution to promote and encourage CSA program participation.
• Provide photographs of fliers or other notification methods of the CSA program.
• Copy Cincinnati 2030 District staff on email distribution.
RESTORATIVE SPACES CRITERIA (Adapted from WELL v2, M07)

Provide at least one designated restorative space available to all regular occupants. The space must meet the following requirements:

- Is a designated space for relaxation and restoration. Space may be multi-purpose, but is not to be used for work.
- Totals a minimum of 75 square feet plus 1 square foot per regular occupant. Space can be allocated in separated or combined rooms with a single room minimum of 75 square feet and maximum of 2,000 square feet.
- Provides a restorative environment that considers at least five of the following:
  - Lighting (e.g. dimmable light levels for indoor space with adjustable window shading if window is present.)
  - Sound (e.g. water feature, natural sounds, sound masking)
  - Thermal comfort (e.g. sun-exposed and shaded areas for outdoor spaces)
  - Seating arrangements that accommodate a range of user preferences and activities (e.g. movable lightweight chairs, cushions, mats)
  - Nature incorporation
  - Calming colors, textures and forms
  - Visual privacy
- Includes signage, education materials, or other resources explaining the purpose and intended use of the space.

VERIFICATION METHOD

- Provide a floor plan drawing of all designated restorative space including total square footage.
- Include notations specific to the restorative environment and the elements considered/ incorporated.
- Provide photographs of the space.
- Provide a copy of the policy regarding usage of restorative spaces.
- Provide a copy of educational material available.

ENHANCED ACCESS TO NATURE (Adapted from WELL v2, M09)

Provide a combination of indoor plants, water feature(s) and/or view(s) comprising of natural areas, such as vegetation or water features that meet a combination of the following requirements:

- Within direct line of sight of at least 75% of all workstations and seats within conference rooms, lecture halls or classrooms
- Within 33 feet of all workstations and regularly occupied spaces (typically more than 4 hours)
- All water features (if included) use ultraviolet sanitation or other technology to address water safety
VERIFICATION METHOD

- Provide a narrative that describes how the interior layout and placement of indoor natural elements encourage occupant access to nature.
- Provide a floor plan drawing indicating location of interior/exterior natural elements and the distance or direct line of sight to workstations and seats within conference rooms, lecture halls and classrooms.
HEALTHY BUILDINGS STRATEGY

LIGHT REQUIREMENTS

CIRCADIAN LIGHTING DESIGN CRITERIA (Adapted from WELL v2, L03)

- For workstations used during the daytime, electric lighting should achieve at minimum 150 equivalent melanopic lux (EML) for at least four hours at a height of 18 inches above the work-plane for all workstations in regularly occupied spaces.

VERIFICATION METHOD

- Provide floor plan drawing with workstation locations and the associated spectrometer tested results for EML at each workstation.
- Provide a photo of the spectrometer testing in progress.

DAYLIGHT DESIGN STRATEGIES CRITERIA (Adapted from WELL v2, L05)

- 70% of all workstations are within 25 feet of transparent envelope glazing. Visible light transmittance (VLT) is greater than 40%.
- All vertical transparent envelope glazing have manual shading controllable by occupants at all times.

VERIFICATION METHOD

- Provide technical detail drawings of the envelope glazing system.
- Provide specifications for the glazing system.
- Provide photographs of manual shading devices at envelope glazing.
- Provide a copy of the operations schedule indicating regular opening of shading devices.
HEALTHY BUILDINGS STRATEGY

MATERIAL REQUIREMENTS

VOC RESTRICTION CRITERIA (Adapted from WELL v2, X06)

The project develops a maintenance, renovation, and purchasing policy that include the following requirements:

Newly installed interior wet-applied paints, coatings, adhesives, sealants and finished poured floorings used inside the building envelope meet the following:

- All products are tested by a third-party laboratory to meet testing methods and thresholds established in one of the following standards and/or regulations for VOC content:
  - SCAQMD Rule 1168 (Adhesives and Sealants, 2017)
  - GB 33372-2020 (Adhesives)
  - 2019 CARB SCM for Architectural Coating
  - EU Ecolabel for indoor and outdoor paints and varnishes
  - HJ 2537-2014 (Paints)
  - Any other standard listed in VOC content evaluation from LEED v4.1 credit Low-Emitting Materials
- At least 75% of products are tested by a third-party laboratory to meet testing methods and thresholds established in one of the following standards and/or regulations for VOC emissions:
  - California Department of Public Health (CDPH) Standard Method v1.2
  - AgBB
  - European Union LCI VOC thresholds following EN 16516-1:2018 testing methods

Newly installed flooring and/or furniture meet either of the following:

- 90% of cost or surface area of newly installed flooring comply with California Department of Public Health (CDPH) Standard Method v1.2
- 75% of cost of newly installed furniture, millwork, and fixtures comply with ANSI/BIFMA e3-2014, Sections 7.6.1 or 7.6.2. Clearly identify that this standard is written into a policy used by FE, A/E design, and construction.

VERIFICATION METHOD

- Provide a copy of the maintenance / renovation policy indicating requirement for compliance with the reference standards.
- Provide a copy of product cutsheets indicating compliance with VOC standards when undergoing maintenance / renovation work.
- Project costs and letter of assurance from contractor

CLEANING PRODUCTS & PROTOCOLS (Adapted from WELL v2, X11)

The project develops and implements a cleaning plan that meets the following requirements:

- Details the following:
  - Extent and frequency of cleaning.
  - Cleaning responsibilities of building occupants and cleaning staff.
  - Cleaning supplies available to building occupants and where they can be accessed.
  - Process to evaluate and document adherence to the cleaning plan.
- Identifies the following:
  - Surfaces that require disinfection (e.g., high-touch surfaces).
CLEANING PRODUCTS & PROTOCOLS CONTINUED

- Frequency and/or other thresholds (e.g., number of hours, number users of a space, results from a swab test) for disinfection.
- Applicable governmental registration and directions of use (e.g., contact time and dilution rates) for disinfectants.
- Other non-chemical tools used for disinfection, if any.

- States the following documentation procedures:
  - Record keeping practices for cleaning and disinfection activities.
  - The chain of communications with building occupants.
  - A system to log feedback from occupants and cleaning staff.

- Specifies the following for cleaning materials and personal protection equipment (PPE):
  - PPE requirements for general cleaning and specialized tasks (e.g., disinfection or dilution or chemicals).
  - Color-coding for reusable and disposable cleaning cloths.
  - Separate cleaning of reusable cleaning materials from other clothing or products.

- Includes the following precautions for storage of cleaning products:
  - An identifiable, fit-for-purpose storage space in accordance with the manufacturers’ directions; bleach stored away from other products.
  - Color-coding and labeling of any bleach-based and ammonia-based products, indicating they are not to be mixed with one another.

- Specifies the following for cleaning tools and equipment:
  - HEPA rated filters for vacuum cleaners.
  - If carpet and woven upholstery are present, the cleaning methodology (based on manufacturer’s recommendations), favoring hot water extraction if technically feasible.
  - Protocols for cleaning, maintenance and handling of waste accumulated in equipment (e.g., used vacuum cleaner bags).

- Includes the following operational aspects:
  - Use of cleaning and disinfection products, including dilutions (when needed) and ventilation requirements.
  - On-site availability of current Safety Data Sheets (SDS) of cleaning and disinfection products, in languages spoken by the cleaning staff.
  - Precautions to avoid slip hazards during and after floor cleaning.
  - Safe disposal of waste, including soiled cleaning materials and PPE.

- Outlines a training program that meets the following:
  - Training covers cross-contamination prevention via hand hygiene, PPE, cleaning cloth replacement, cloth handling techniques and carrying systems to separate clean tools from dirty ones.
  - Training is delivered to all relevant personnel including building management, building operators and contracted cleaning staff, on an annual basis, and whenever protocols change.

All cleaning, disinfection and sanitization products are specified in the cleaning plan and meet one of the following requirements:

- Products are labeled as ‘low-hazard’ or ‘safer’ by an ISO 14024-compliant (Type 1) Ecolabel, or by a third-party certification recognized by the local government where the project is located. Hazard criteria must be specific for the product classes within the scope of this feature.

- The Safety Data Sheet (SDS) of each product discloses ingredients per EU Regulation 2015/830 (CLP) or California State Bill No. 258 and no ingredients listed in Section 3 of the SDS are classified as Category 1, 1A or 1B for the following Globally Harmonized System (GHS) codes and corresponding hazard statements:
  - H311 (toxic in contact with skin).
  - H312 (harmful in contact with skin).
  - H317 (may cause allergic skin reaction). Individual terpenes may be present up to a concentration of 0.5% in undiluted products.
  - H334 (may cause allergy or asthma symptoms or breathing difficulties if inhaled).
CLEANING PRODUCTS & PROTOCOLS CONTINUED

- H340 (may cause genetic defects).
- H350 (may cause cancer).
- H360 (may damage fertility or the unborn child).
- H372 (may causes damage to organs through prolonged or repeated exposure).

VERIFICATION METHOD

- Provide an ECOLabel for all cleaning products or a product-specific Safety Data Sheet assessed for compliance by a third party.
- Provide the building operational policy and cleaning schedule.
- Provide information about trainings for cleaning staff
- **Note:** Trainings must be language and culturally appropriate and literacy level appropriate education. Trainings may be provided on-site, off-site or online; in group or individual settings; and through vendors, on-site staff, health insurance plans or programs, community groups or other qualified practitioners.
HEALTHY BUILDINGS STRATEGY

MOVEMENT REQUIREMENTS

ERGONOMIC WORKSTATION DESIGN CRITERIA

Workstations shall meet the following criteria:

- Visual: All computer monitors can be positioned by the user (monitor height, viewing angle, horizontal distance) through one or more of the following:
  - Monitors with built-in height and angle adjustment.
  - Monitor stands or arms that allow height, angle, and horizontal adjustment.

- Work Surfaces: At least 25% of all workstations can be adjusted by the user for both seated and standing work through one of the following:
  - Manual or electric height-adjustable work surfaces that provide users with the ability to Customize workstation height at both seated and standing positions.
  - Supplemental solutions that allow all or part of the work surface, monitor and primary input devices to be raised and lowered to seated or standing heights.

- Chair Adjustability: All seating at workstations can be adjusted by the user, including the following:
  - Seat height
  - Seat depth

  One additional adjustability requirement:
  - Backrest height and lumbar support
  - Backrest angle
  - Armrest height and distance between armrests

- Workstation Ergonomic Training: Offered quarterly for the first year, then to all new regular occupants. All eligible occupants receive an orientation to workstations in the space covering, at minimum, the following:
  - Ergonomic and adjustability features of a given workstation and their benefits.
  - Demonstration on how to make adjustments based on individual needs.
  - Available resources that can be used for future reference and where to access them.

VERIFICATION METHOD

- Provide photographs of workstation.
- Provide floor plan drawing of workstation layout.
- Provide a list of workstation components / specifications.
- Provide sample ergonomic education training resources.
- Copy Cincinnati 2030 District Director in any correspondence related to ergonomic training.
PHYSICAL ACTIVITY SPACES & EQUIPMENT CRITERIA (Adapted from WELL v2, V08)

Option 1: Provide a dedicated fitness facility within the project boundary at no cost to eligible occupants which is sized according to one of the following requirements:

- The space includes at least two types of exercise equipment in quantities that allow use by at least 5% of regular occupants at any time.
- The space includes at least two types of exercise equipment and is at least 270 square feet plus 1 square foot per regular occupant, up to a maximum of 10,000 square feet.

Option 2: Provide eligible occupants access to a fitness facility within 650 feet walking distance of the project boundary at no cost.

VERIFICATION METHOD

- Provide a floor plan drawing of the exercise space(s).
- Provide a floor plan / site drawing of the building location and a fitness facility with the walking distance shown.
- Provide photographs of the fitness space.
- Provide the number of regular occupants.
DEFINITIONS

Unless otherwise expressly stated, the following words and terms shall, for the purpose of this guide, have the meanings shown in this section.

REGULAR OCCUPANT

Individuals who spend at least 30 hours per month within the project boundary. This includes cleaning staff, long-term contractors, facility managers, etc.

DIRECT STAFF

Individuals under direct employment and identified as qualifying for benefits by the 2030 District Member. This includes work-from-home employees.

ELIGIBLE OCCUPANT

The combination of Direct Staff and Regular Occupants.

REGULARLY OCCUPIED SPACE

An area within the project boundary where a regular occupant spends at least one continuous hour or cumulative, at least two hours per day, such as an office, conference room, or classroom.

ABBREVIATION DEFINITIONS

ug: microgram
ppm: parts per million
ppb: parts per billion
mg/L: micrograms per liter
1. Hamilton County Board of County Commissioners, (2020). That Racism is a Public Health Crisis [PDF]. Cincinnati, OH: Hamilton County Board of County Commissioners.


44. OSHA, NIOSH, & Center for Disease Control. (2012). Protecting Workers Who Use Cleaning Chemicals [PDF]. OSHA.


