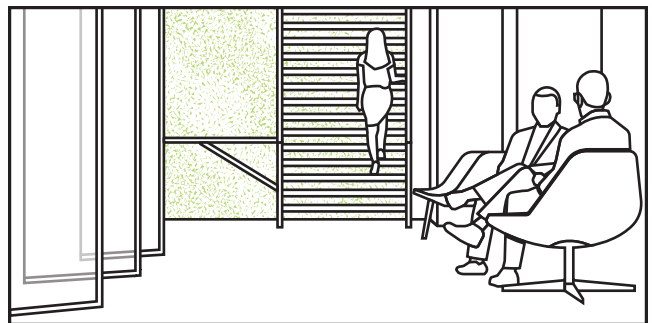
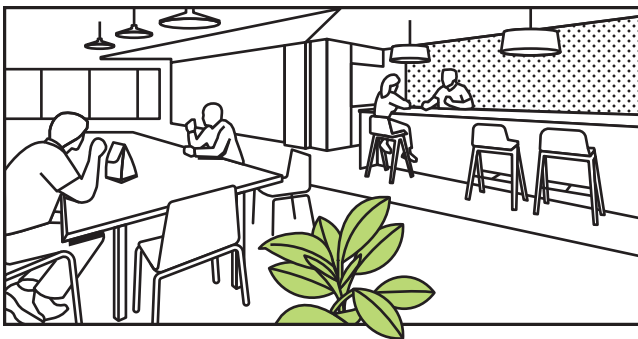


# The Office Guide



# To Building Health

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This manual is being offered as a free resource by the Center for Active Design and QuadReal to promote health and wellbeing within buildings through practical and impactful design and operational approaches.

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Center for Active Design

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# The Office Guide



# To Building Health

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# Welcome!

Welcome to The Office Guide to Building Health—a resource we hope you will refer to often! This manual supports you and your colleagues’ ambition to create a healthy, welcoming environment, and offers guidance—regardless of budget, capacity, or expertise—to support the health and productivity of your team through evidence-based design and operational approaches.

Through this manual, we offer an approachable starting point to understanding what, when, and who can help create a health-promoting workplace, at a range of scales and costs. It is specifically directed toward tenants in commercial properties, and informs the company leadership, office manager, and/or consultant design team on how to improve health within the office environment.

While we recognize that all building projects and needs vary, the guidance within this manual is designed to be widely applicable. The strategies presented within each section draw directly from global evidence and validated workplace best practices, so you can be assured that the approaches outlined represent the latest in research and trends to support high-quality, healthy work environments. Finally, within each section, you will find strategies and implementation considerations, each with accompanying guidance and illustrative examples.

We recognize that not everything will be in your control, and you may not take up every idea or address every priority—and that’s okay. This guide is here to help set you on the right course, and from there, you’ll keep improving.

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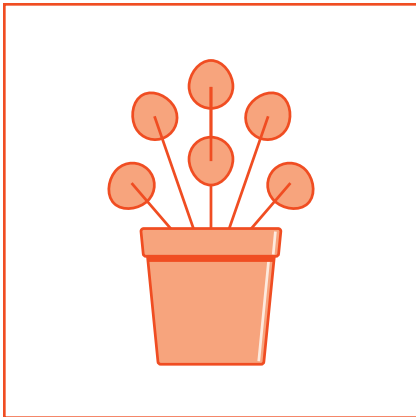
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# How Workplace Design Impacts Health

Workplaces can be either supportive or harmful to “health,” a definition which is widely recognized as including physical, mental, and social wellbeing. As an example, work environments can mitigate indoor air pollutants or add to them; can encourage or discourage bouts of physical activity; and can promote interaction between coworkers, or can design interaction out of the picture. Air quality,

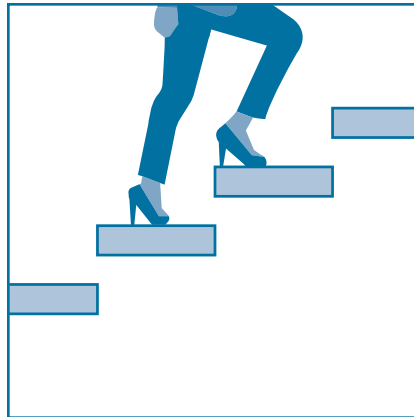
levels of physical activity, and social bonds all contribute to physical and mental health, as well as overall feelings of happiness and satisfaction. Put simply, positive changes in the workplace environment can yield improved health outcomes for employees.

Consider how office spaces are shown to directly impact health.



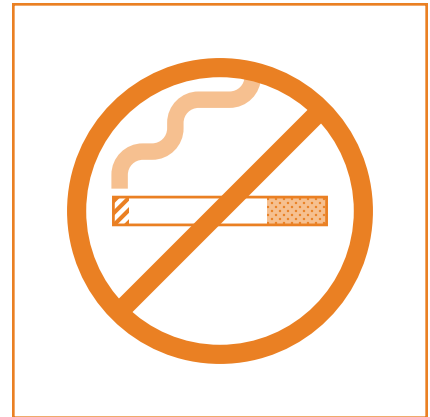
Indoor air pollutants are generally 2 to 5 times greater than outdoor pollution levels. In some cases, it can be 100 times greater.

Environmental Protection Agency, 2017



Two minutes of stair climbing a day burns enough calories to prevent average U.S. annual weight gain.

Zimring, Joseph, Nicoll, & Tsepas, 2005



Smoke-free workplace policies reduce prevalence of smoking by 3.8% and lower tobacco consumption by 3.1 cigarettes for each continuing smoker.

Fichtenberg & Glantz, 2002

As the below infographic spells out, there is a compelling argument to be made for why improving the health of a work environment is important. Improving health is good for both individual wellbeing and for the business's bottom line.

Design and health are intrinsically linked. Decades of public health research have further strengthened knowledge of

this connection and strengthened the understanding of how to design optimal, health-promoting spaces.

The Office Guide to Building Health was created to drive change in office behaviors to support positive health outcomes.



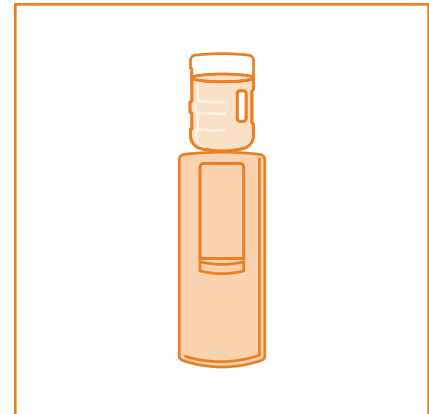
Poor ratings of light quality and views in offices are associated with a higher number of sick leave hours.

Elzeyadi,  
2011



Breastfeeding reduces medical costs: for every 1,000 babies not breastfed, there is an additional number of 2,033 physician visits, as well as 212 days in the hospital and 609 additional prescriptions.

Center for Prevention and Health  
Services, 2009



People who drink less than 4 cups of water a day are less likely to consume fruits or vegetables, or meet the recommended weekly activity goals.

Goodman et al.,  
2013

---

# Collaboration is Key to Strengthening Impact

## Property Team and/or Landlord Collaboration

We recommend initiating a conversation with your landlord and/or property management team to make them aware of your workplace priorities, your plan of action, and to enlist their help in the effort. As a commercial tenant, partnership and support from the on-site property personnel will help advance your healthy workplace undertakings, and the mutual support will be beneficial to all parties involved.

## Colleague Collaboration

Setting workplace wellbeing goals should be a collaborative process. Ensuring that this process reflects the needs of everyone in the workplace is critical to decision making. We recommend garnering input from colleagues to help focus a plan of action.

Here are common approaches to gain input and solicit ideas:

**Research** market trends; view the workplace as a competitive asset and recruitment tool.

**Assess** the current office state; identify the practices and amenities that are already in place, and/or those that can be improved.

**Collect** ideas, priorities, and feedback through a survey method, meeting, or internal workshop.

**Secure** buy-in and approval from corporate leadership as they will likely be called upon to approve funding for improvements.

**Share** your findings and keep those involved updated and excited.

There are many ways you can initiate a dialogue—it's up to you to determine how best to go about this. The most important aspect is to strike up these important conversations before delving into decision making.



# Using this Manual

While anyone can learn from its content, this manual is best used by decision makers who find themselves within the following distinct stages:

## 1. Locating and Selecting a New Office Space

Begin by determining workplace health priorities and sharing those ideas with your broker and prospective landlord(s). For this stage, guidance is provided in the following sections:

- **Choosing a Well-located Building**
- **Choosing a Building with Good Health and Wellbeing Amenities**
- **Choosing a Building with Good On-Site Amenities**

## 2. Designing, Renovating, or Fitting Out an Office Space

Now is the time to share established health priorities with the design team and/or property team(s) to consider how best to implement strategies within the design and outfitting of the space. If you find yourself in this stage, refer to the following section:

- **Outfitting a Leased Space to Prioritize Health and Wellness**

## 3. Strengthening Existing Spaces by Shifting Priorities and Establishing Policies

If you are currently occupying an office and are not looking to make major structural shifts, now is the time to achieve internal alignment on priorities and policies that support health and discuss actions with the property team and landlord. For more information on how to do this, refer to the following sections:

- **Improving an Existing Space with Easier-to-Implement Interventions**
- **Building Policies and Procedures**

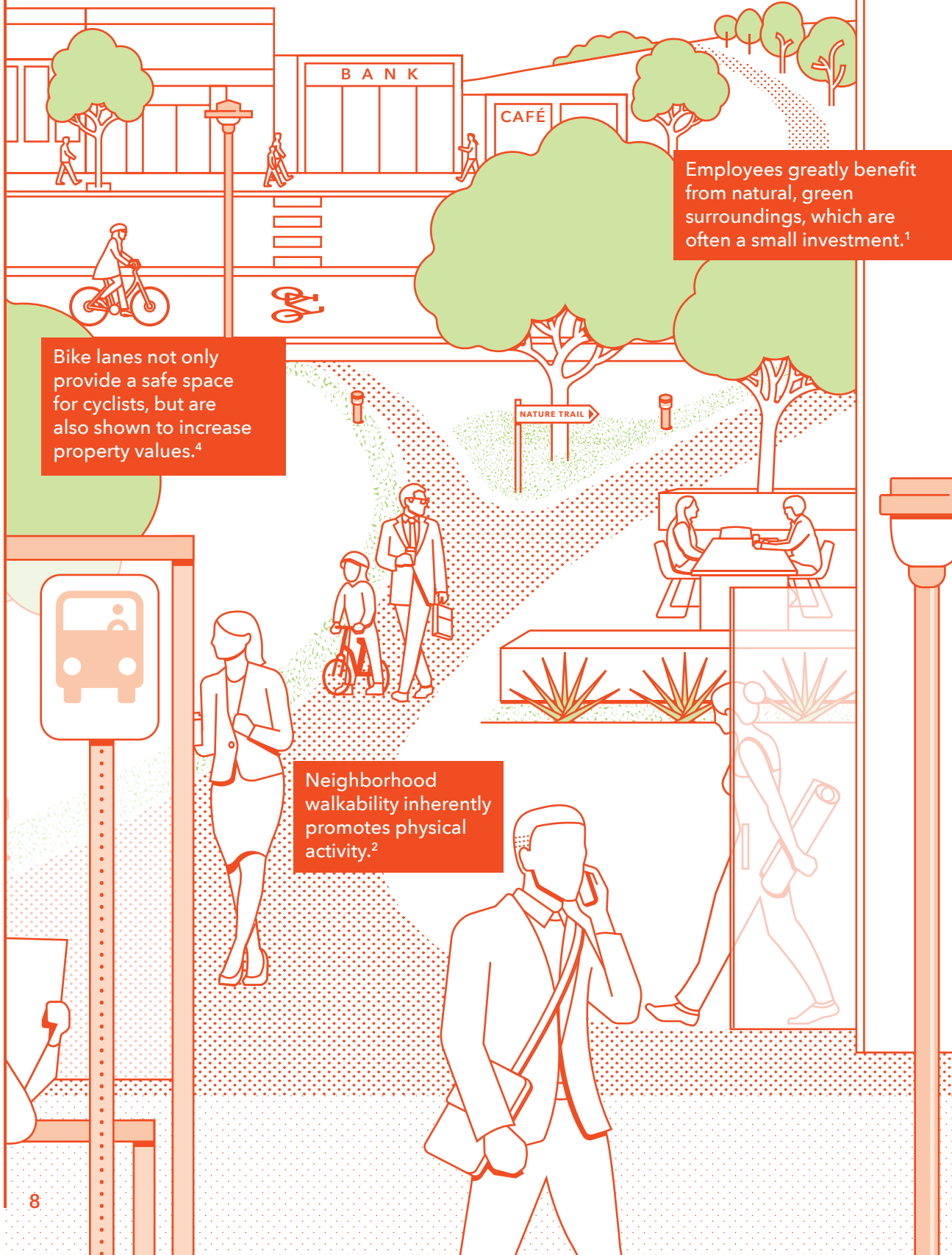
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Tenants may find themselves straddling multiple stages for a distinct project. For example, if embarking on the redesign of a break room, but not an entire office, there are pertinent ideas and strategies to review and consider in both Stage 2 and Stage 3. As such, we recommend reviewing this manual in its entirety. Taken individually, the strategies offer incremental

improvements. Yet, when pursued collectively and comprehensively, the contents of this manual can help yield a best-possible health-promoting environment, and can convert any office space—be it a conceptual idea for future commercial interior space, or currently occupied multi-tenant space—into one that prioritizes and celebrates health and wellbeing.

# 1. Locating and Selecting a New Office Space

This section outlines several key questions to raise with leasing agents and/or property teams as you tour potential office spaces.

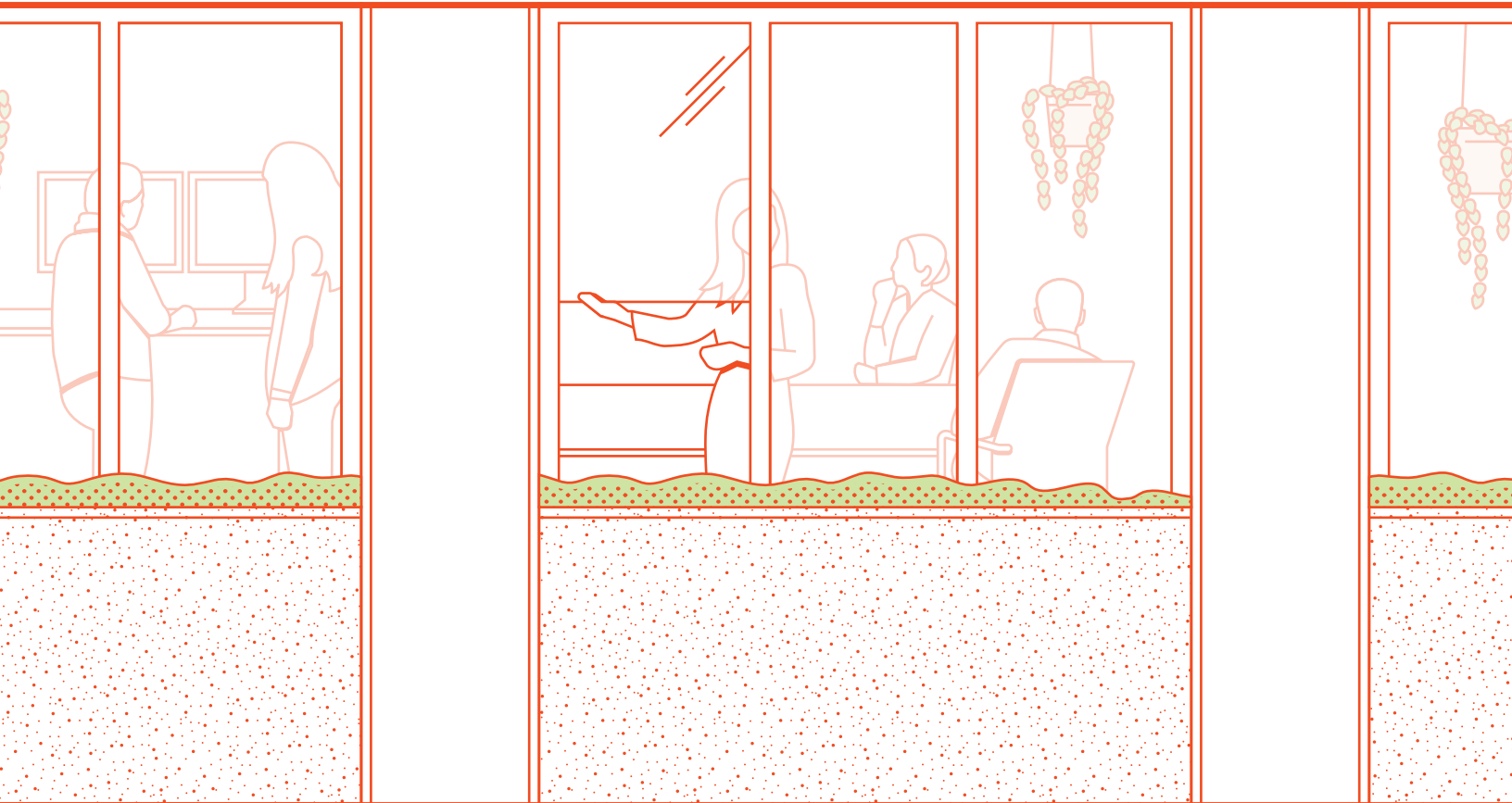


Employees greatly benefit from natural, green surroundings, which are often a small investment.<sup>1</sup>

Bike lanes not only provide a safe space for cyclists, but are also shown to increase property values.<sup>4</sup>

Neighborhood walkability inherently promotes physical activity.<sup>2</sup>

Locating and Selecting a New Office Space



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Investing in health is good for business: companies that prioritize health and wellness outperformed the S&P Index by 75% over a 6-year simulation period.<sup>3</sup>





## Choosing a Well-Located Building

**Selecting where** to locate an office is one of the most important decisions when striving to create a health-promoting workplace culture. The proximity of the workplace to easily accessible, everyday amenities can greatly benefit health, since the area surrounding an office can naturally promote physical activity. Numerous studies show that people walk more in their daily lives if different types of destinations are within comfortable walking distance.<sup>5</sup> If grabbing lunch requires only a pleasant and direct 10-minute stroll, employees are more likely to perceive the stroll as the easiest option, as opposed to traveling by car in unpredictable traffic.



# Neighborhood Walkability

## Walking unlocks a cycle of positive health benefits.

Determining just how walkable an area is—its “walkability”—presents an important decision and opportunity when seeking improved health.

To evaluate an area’s walkability, consult with Walk Score® ([www.walkscore.com](http://www.walkscore.com)), a publicly accessible walkability index. This free online resource measures the walkability of an address by analyzing walking routes to nearby amenities, and tabulating a score based on the distance to amenities in each pre-determined category, including food and retail outlets and community assets.

This platform also measures how friendly the surrounding infrastructure and streetscape is to pedestrians, taking into account the quality and quantity of sidewalk connections. The outcome is an easy-to-understand score, which simply communicates walkability on a scale of 1 to 100.

- Strive for an office location where the address receives at least a 50 in Walk Score’s calculation. A score over 50 assures that at least some errands can be made on foot. Anything less than 50 nearly guarantees employees will use a car for every trip.
- The higher the score, the more amenities, activities, and pedestrian infrastructure is in place.



Sunset Media Center

# Surrounding Amenities

**A key walkability metric is the quantity of neighborhood amenities that are within easy reach of the office.**

These include the kinds of services and conveniences that employees need: spots to grab lunch, parks to take a walk, childcare facilities, drug stores, healthcare facilities, etc. Locating the office among a concentration of amenities helps employees take care of personal business with fewer daily interruptions, and negates the need to get in a car for every trip, thus spurring walking trips instead.<sup>6</sup>

- Seek offices that are within a realistic walking distance to a mix of everyday shops and services, such as food outlets, financial services, healthcare centers, retailers, and recreational opportunities, including gyms and parks. A helpful distance measure is a maximum of ½ mile or 800 meters walking distance from the workplace to amenities, which roughly equates to a 10-minute walk for the average adult.
- Prioritize office locations that provide easy walking access to parks and nature trails. Employees greatly benefit

from being close to parks, trails, and other open spaces as they provide essential space for employees to relax and recharge. Unrestricted access to nearby restorative spaces (such as parks) encourages physical and social activity through frequent visits, which translates to reduced stress and/or anxiety and improved mental health.<sup>7</sup>

- Properties in more urban contexts can maximize exposure to nature and on-site access to amenities that support increased physical activity, such as perimeter walking trails, gardens, and seating areas.



Bagby Corridor

# Accessibility from Alternate Modes of Transportation

**It is important to identify a building location that has reliable, convenient access to transit choices, and is surrounded by a network of sidewalks and bike lanes.**

Commuting by alternative transportation (meaning, modes other than a personal automobile) boosts physical activity and supports improved mental health.<sup>8</sup> Reliable public transit offers a workable alternative to car commuting, and transit is associated with several positive health outcomes, including a reduction in stress, increased physical activity, improved community health, and just as importantly, can also enhance

equity for those unable or do not have the means to drive.

Similarly, selecting a building that is located adjacent or in close proximity to bike lanes and bike paths ensures that traveling by bike is viewed as a safe and valid option—so much so that some employees might even consider expanding their commuting modes to include a few bike trips per week. In-street biking infrastructure, like helpful signage and bike racks, can help employees, from the bike curious to bike confident, move away from the car for every trip.<sup>9</sup>

- Select offices that are within a short distance of alternate travel options. The distance between a building’s main entrance and the nearest transit stop(s) can be measured using an online mapping tool, such as Google Maps.

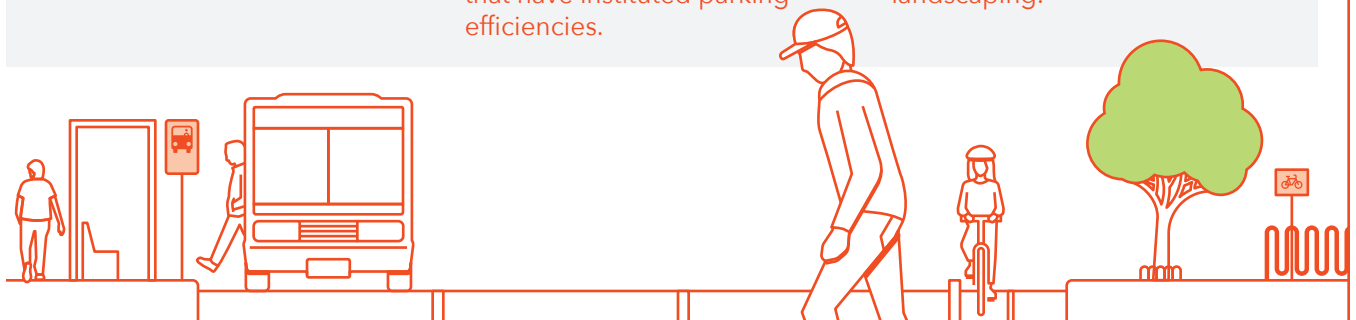
□ A recommended maximum distance is ½ mile or 800 meters, which roughly equates to a 10-minute walk for the average adult.

- Proximity to bike share and/or bike rental facilities is a plus. Short-term, short-trip travel modes, like bike shares, can encourage short jaunts into the neighborhood and promote physical activity.

□ Look out for excessive parking. A property with excessive, free parking can work against employee health by promoting unlimited automobile use. Instead, identify properties that have instituted parking efficiencies.

These methods include a reduction in the number of available parking spaces, the reservation of parking spaces for carpoolers and bike parking, and fee-to-park models that charge fair market value.

□ If the property does include surface parking, look for sites that maximize the visibility of pedestrians within the parking lot, through sidewalks, protected pathways, and enhanced landscaping.





# Choosing a Building with Good Health and Wellbeing Amenities

**After identifying** an office location that is both walkable and nearby to everyday amenities and services, it is then time to consider how the very design of the building itself can promote health and wellbeing for occupants. Considerations range from form (like facades and how the building is positioned on the sidewalk) to function (like whether there is a fitness center or accessible stairwells that can be used by tenants).

## Choosing a Building that Supports Good Access

In the prior section, we underscored the importance of honing in on locations that support walking and alternative transportation. From this foundation, we now posit other important access questions to consider in terms of building design and how buildings interact with their surroundings:

---

Is there an easy, safe route between transit and the main building entrance?

---

Is the main entrance oriented to a major pedestrian corridor?

---

Is there sufficient lighting along the building exterior to make nighttime feel safe and secure?

---

Does the building provide enough biking amenities for occupants?

---

Does the building offer showers and lockers for those who actively commute?

---

On the following pages are a number of suggested strategies to help gauge whether a property is designed to optimize access to pedestrian and active transportation choices.





# Access to Alternate Forms of Transportation

## Lighting



**Building design can ease or hinder access to alternate modes of transportation.**

- Orient the building’s main entrance to a bustling pedestrian route, such as a walking footpath or directly onto a sidewalk or plaza. Ideally, this pedestrian path should link with a transit stop or bike route in less than ½ mile or 800 meters, which is about a 10-minute walking distance.
- Signs at the ground floor building entrance that identify location, direction, and distance can additionally support the visibility of the transit stops, bike paths, and walking trails, and contribute to a sense of familiarity with surroundings and travel choices.

Research shows that lighting at building entrances, along exterior walkways, and in all exterior spaces (parking garages, etc.) must provide adequate and consistent illumination for pedestrians.

Ample lighting at nighttime signals safety and security and can help remove the psychological barriers associated with walking after dusk.<sup>10</sup> Similarly, improved lighting can increase visibility and reduce the opportunity for crime.<sup>11</sup> Employees will feel more comfortable walking in the evening hours only when light levels diminish any perceived insecurities.

- Seek consistent exterior illumination that minimizes shadow and glare.
- Ensure that the building exterior offers adequate lighting with a mixture of light types and levels. Nighttime lighting is best when it projects light both from the ground (up lighting) and at the human-scale. In most instances, this requires more than just overhead streetlights, and can include shorter street fixtures, in-ground lighting, and lighting affixed to building exteriors.

## Secure and Covered Bicycle Parking

**Employees are more likely to view biking as a practical choice if there is a secure and convenient place to store a bike.**

It's unreasonable to expect an employee to lug a bike in and out of office hallways—it will be viewed as burdensome and off-putting, and can further aggravate colleagues who share the workspace. Stowing bicycles outside of the office can also help limit interior damage caused by wheeling bikes around.

- ▣ Covered parking should shield bicycles from the elements, such as rain and snow. Parking can be provided outdoors as long as it's covered, or indoors in a dedicated, convenient space.
- ▣ Theft is a major concern for cyclists. All bicycle racks should be bolted to the walls or floor, or located within a lockable storage space inside the building. The building property team can help formalize a storage space and/or bicycle policy for the building.

Providing an adequate number of bicycle parking spaces that are both secure (to provide peace of mind) and covered (to protect against inclement weather) is shown to increase the appeal of cycling to work, helping to boost levels of physical activity.<sup>12</sup>

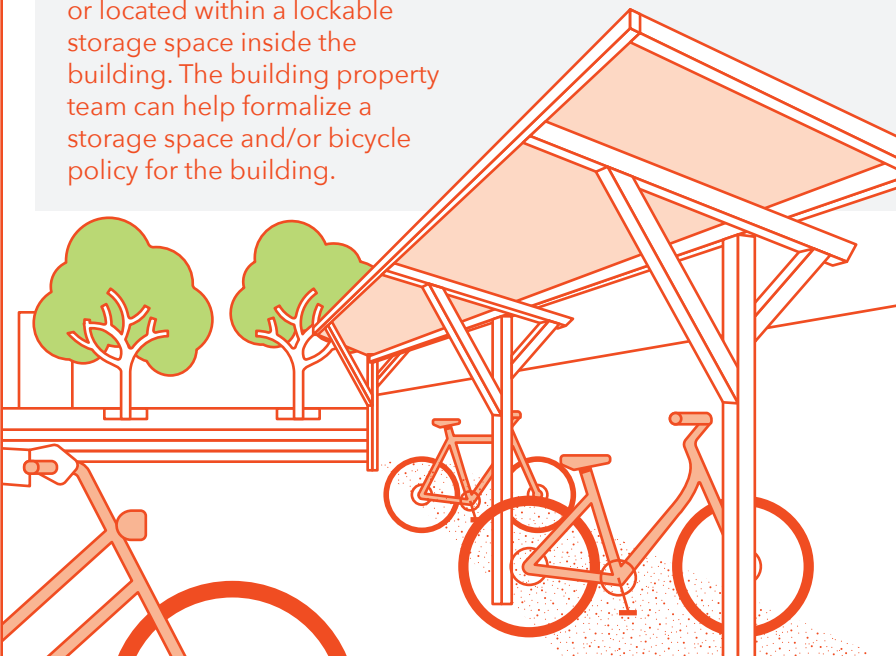
- ▣ Convenience is key: bicycle parking is best located near the main building entrance. We recommend within 100 feet or 30 meters to ensure that bike commuters can see the bike parking and aren't dissuaded by distance and placement. It is best to avoid making people walk up and down stairs to store bikes.

## Changing Facilities

**Outdoor temperature is a major factor for those who might commute by walking, running, or cycling.**

A building with showers can increase the appeal of using alternative transportation as it provides a remedy to traveling in a range of weather conditions. Having a place to freshen up before or during work promotes the notion of breaking a sweat to/from work, or even during work breaks.

- ▣ Seek a building that provides an adequate number of showers. We recommend a 1:100 shower/occupant ratio (e.g., a building with 350 total employees should offer a minimum of 3 showers).
- ▣ Lockers are important. Lockable cubbies promote a sense of security, providing employees with a place to store belongings, encouraging use of facilities.



# Choosing a Building with Good On-Site Amenities



**Time spent at work** is enhanced by physical activity. In today's office culture, which is increasingly digitized, the lines between work, social, and personal time are often blurred. Downtime is both desired and needed.

The modern workday provides an opportunity to positively impact health by leveraging increasingly flexible work hours. Working out during lunch, using the stairs throughout the day, or meditating briefly for mental recharge are all examples of activities synonymous with healthy living.

The below questions should be central to your conversations with realtors and leasing agents in order to determine the health-promoting capacity of potential properties.

---

Does the building offer an onsite exercise facility?

---

Is there at least one outdoor communal space that is enhanced with nature?

---

Is there an exterior restorative garden or quiet space to disconnect?

---

Are there connections to nearby walking trails or is there a walking path on site?

---

Do accessible stairwells allow employees to move freely and comfortably?

---

Are workspaces flooded with natural light?

---

Are building materials pollutant and toxin free?

# Fitness Opportunities

**Working out is an obvious and popular way to improve personal health.**

Yet, far too often exercise is easily eliminated from the daily routine, with inconvenience often cited as the reason.<sup>13</sup>

To overcome the perception that exercise is inconvenient, consider ways of punctuating daily schedules with physical activity. Look for properties with an on-site fitness center, and incentivize membership through preferred rates. Providing an affordable and convenient facility for exercise can encourage people to begin or end their day with exercise, or even schedule a workout in the middle of the day, embedding fitness into daily routines. Similarly, a building that provides on-site shower and changing facilities enables runs, walks, and bike rides at any point in the day.



The Pearl



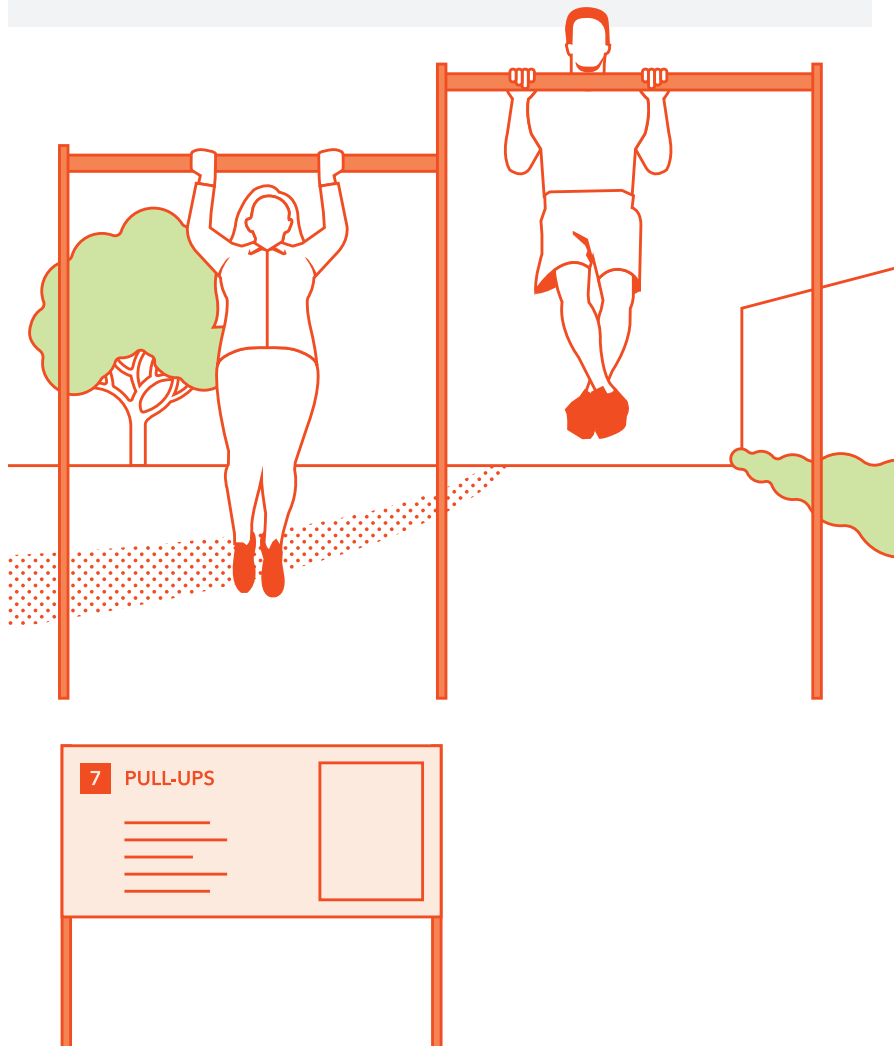
Campus Pointe by Alexandria, San Diego

## Fitness Facilities

- Look for properties that have on-site, staffed facilities with classes and training opportunities, which are shown to be the most appealing for employees. The more the on-site facility mirrors a full-scale gym, with complete cardio, strength training, and classes, the better.
- Subsidize membership as an employee perk. Discounting membership rates will encourage employee enrollment and more frequent use.
- Publicize alternatives if the property lacks an on-site facility. If fitness opportunities are available nearby (ideally less than a ½ mile or 800 meter, 10-minute walk for easy access), publicize the location and negotiate preferential/corporate rates for employees.

### Outdoor Fitness Equipment

- ❑ Provide exterior fitness equipment, ranging from outdoor-specific strength training equipment, to basketball and volleyball courts, which are amenities that can boost employee bonds and even strike up a little friendly competition. Harness the competitive spirit and formalize exercise programs outdoors.
- ❑ The equipment should be permanent and regularly available at no cost.
- ❑ If the building lacks outdoor fitness equipment, consider nearby open spaces that have fitness amenities. Advertise distance and direction with eye-catching, effective interior and exterior signs.



### Exterior Walking Trails

- ❑ Seek out properties that have access to nearby or on-site walking trails/paths. Paths of at least ¼ mile or 400 meters provide an adequate distance for unobstructed physical activity.
- ❑ Walking trails are not sidewalks—they should be entirely separated from motor vehicle right-of-way. Walking paths should minimize exposure to vehicular traffic and instead maximize exposure to nature.
- ❑ Urge walking path use. Invite employees to use paths for walking meetings and group social outings.

# Communal Spaces

## Indoor Break Areas

**A building that offers adequate space to take a break from work, socialize, and eat a meal is shown to increase the likelihood that employees will eat healthier foods, and also improves productivity, since employees don't need to venture out for every need.**

While some tenants may ultimately decide to build out private break spaces within leased offices, many tenants rely on the building to provide shared spaces for all tenants. These shared spaces may be scattered on select building floors or centrally located within the building. In either scenario, shared or private break spaces are essential amenities to seek out.

- A common break area should be furnished appropriately to accommodate lunchtime activity. The minimum interpretation of this should include seating choices and tables, as well as a refrigerator, microwave, and sink. Create a space where occupants can prepare, reheat, and/or eat all in the same place.
- Look for ways to maximize break areas as social spaces—games, reading chairs, cooking classes, lunch and learns, demonstrations, and (healthy) snack/beverage stations are just some of the ways.

## Outdoor Social Spaces

**Access to nature in working environments is directly related to heightened job satisfaction and lower levels of stress.<sup>14</sup>**

Pairing access to nature with enhanced social spaces amplifies these benefits. Outdoor social spaces are increasingly becoming a popular amenity in workplaces, especially as they provide a necessary space to connect with the outdoors, gain exposure to daylight, and add diversity to where and how colleagues socialize. Terraces, courtyards, public gardens, rooftops—any space that is exterior, yet protected from weather elements, provides a meaningful opportunity to design and program for occupant health.

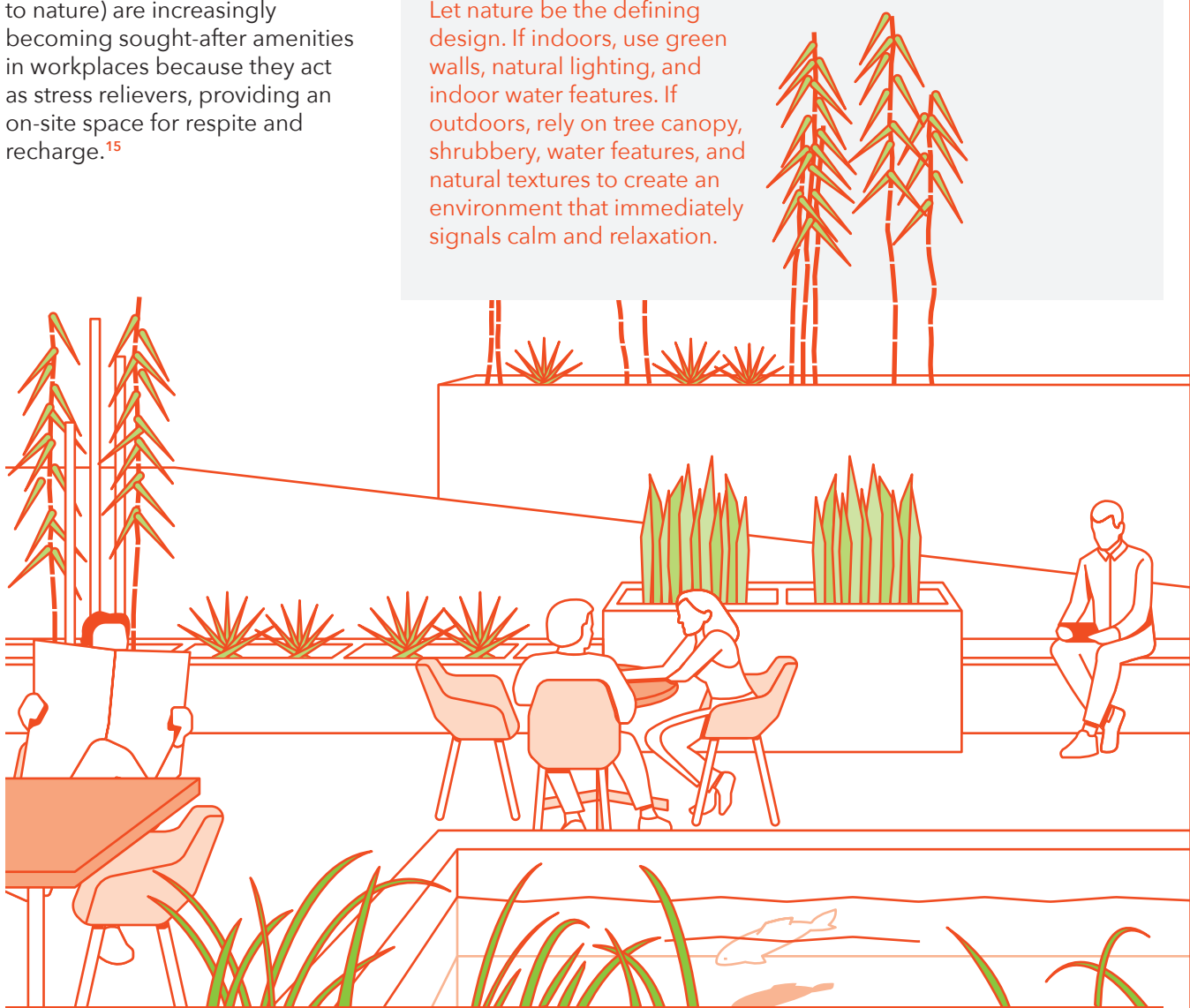
- Access to outdoor space should be direct and convenient. Outdoor spaces should be open and available for all employees and/or building occupants.
- Design the space for both work and non-work. Provide benches, seats, tables, and shade that can accommodate both social activity and focused work. Consider extending Wi-Fi to all outdoor social spaces to create an alternative to indoor workspaces.
- Provide adequate shaded space to ensure ample user comfort. Awnings, umbrellas, and natural tree canopy can protect employees from heat and prolonged sun exposure.
- Beautify with landscaping, nature, artwork, and other amenities that can create an alluring space. Program with social activities, such as outdoor games and wellness events.

Restorative Gardens

**Restorative gardens play a different and vital role compared to outdoor social spaces.**

Research has long established that exposure to nature is a fundamental human need, introducing a host of therapeutic and health benefits. Gardens and other landscaped settings that are intentionally designed to be restorative (i.e., to promote stress relief and connect individuals to nature) are increasingly becoming sought-after amenities in workplaces because they act as stress relievers, providing an on-site space for respite and recharge.<sup>15</sup>

- Provide an interior or exterior space that is richly imbued with nature. The space should be cocooned away from noise and commotion, and should be visually hidden from heavy motor traffic and/or direct street views. If indoors, the space should be isolated from busy lobbies, interior corridors, and other frequent commotion.
- Advertise any nearby restorative spaces if an on-site option isn't available. Ideally, the space will be located no more than ½ mile or 800 meters, which is a 10-minute walking distance, to ensure adequate and convenient distance from the workplace.
- Let nature be the defining design. If indoors, use green walls, natural lighting, and indoor water features. If outdoors, rely on tree canopy, shrubbery, water features, and natural textures to create an environment that immediately signals calm and relaxation.



# Accessible Stairwells

**Not to be underestimated, stairs are a surprisingly simple way of embedding regular physical activity within the work day.**

Climbing just six flights of stairs a day is shown to offset the average annual weight gain of an adult.<sup>16</sup>

But stair use hinges on how noticeable and attractive they are. Selecting properties that have open and accessible stairwells is a sure way to get employees moving throughout the day. Some prime questions to ask of the leasing agent: Does the building locate its stairwells in a convenient and highly visible location upon entry? Is it obvious that stairs are an option, or is the elevator the only visible choice?

Free and unfettered stairwell access is critical to having employees view stairs as the principal means of movement

within the building. In situations where the stairwell is made to be an inviting and attractive mode between floors, the elevator is often relegated to an afterthought, especially when climbing just a few flights.

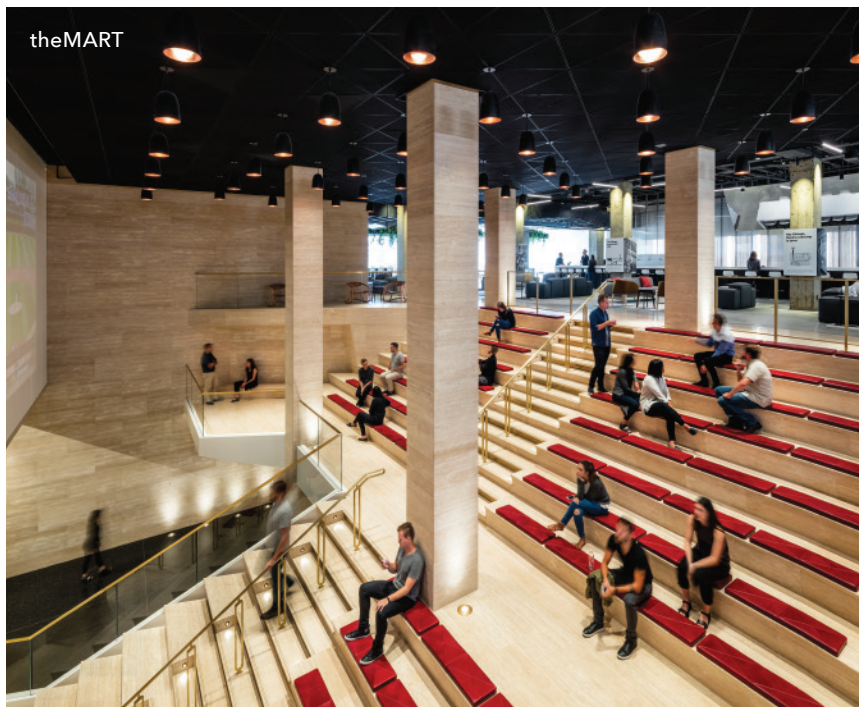
The specific design considerations of stairs will be addressed in more detail on pages 30–31. It is important to consider how stairs interact with and are designed for the public spaces of a building, both for all tenant and single-tenant, internal stairwells.

- Seek entrance lobby stairs that are highly visible, architecturally compelling, and/or striking in design. The more stairs look as though they've been designed as the principle means of movement, and not just egress stairs for emergencies, the more likely occupants are to actually use them. This is especially relevant for getting employees to travel by stair on the first couple of floors.

- Interconnecting stairs should be located in the direct path of travel, preferably as or more visible than the building's elevator bank.

- Tenants must have access to the stairs. At a minimum, tenants should be able to use the stairs to travel from the lobby to their own floors, and any other common-use floors. Open stairs do not have to compete with safety. Limited key card access or other security measures can still provide for stairwell movement between the lobby and an employee's designated floor.

- Signs will help motivate stair use. Placing persuasive signs at elevator call areas that encourage stair use will convince able-bodied occupants to opt for the stairs for at least a portion of trips.





## Transparent Façade

### Daylight improves cognitive function and productivity.<sup>17</sup>

Research reinforces the innate and fundamental desire of humans to be in environments that are connected to nature. A building façade that allows light to penetrate, and that provides easy access to views, is one that inherently improves health.<sup>18</sup>

- Seek out office locations that have an abundance of light and views across all areas of the work environment, including work stations, meeting rooms, and common spaces.
- In more urban contexts, seek spaces that have direct sightlines to natural elements—waterscapes, tree-lines, parks, and plazas. Sightlines to nature are shown to reduce stress and can foster wellbeing within the workplace.
- Seek spaces where operable shades can be installed, to allow for individuals to control their own lighting comfort levels.

## Indoor Air Quality



AMP Brisbane Office

### Healthy Materials

**It is imperative that you check with your leasing agent and property teams to ensure that all buildings under consideration have properly managed asbestos, especially if constructed prior to 1993.**

Asbestos exposure in the broader office building stock continues to be a concern as older properties are retrofitted and re-leased for new tenants.

Similarly, healthy building materials and supplies promote optimal air quality and sustainable practices. For more information on methods for ensuring healthy buildings through policies and procedures, please refer to Stage 3.

### Tobacco-Free Premises

**Smoking, vaping, and secondhand smoke are detrimental to the health of all occupants in a shared space.<sup>19</sup>**

Develop and implement a tobacco-free policy that is applicable across the property and/or campus, ensuring that all non-smokers avoid exposure to harmful toxins, and experience optimal air quality across the workplace. Instituting a tobacco-free policy is also shown to help curb tobacco use.

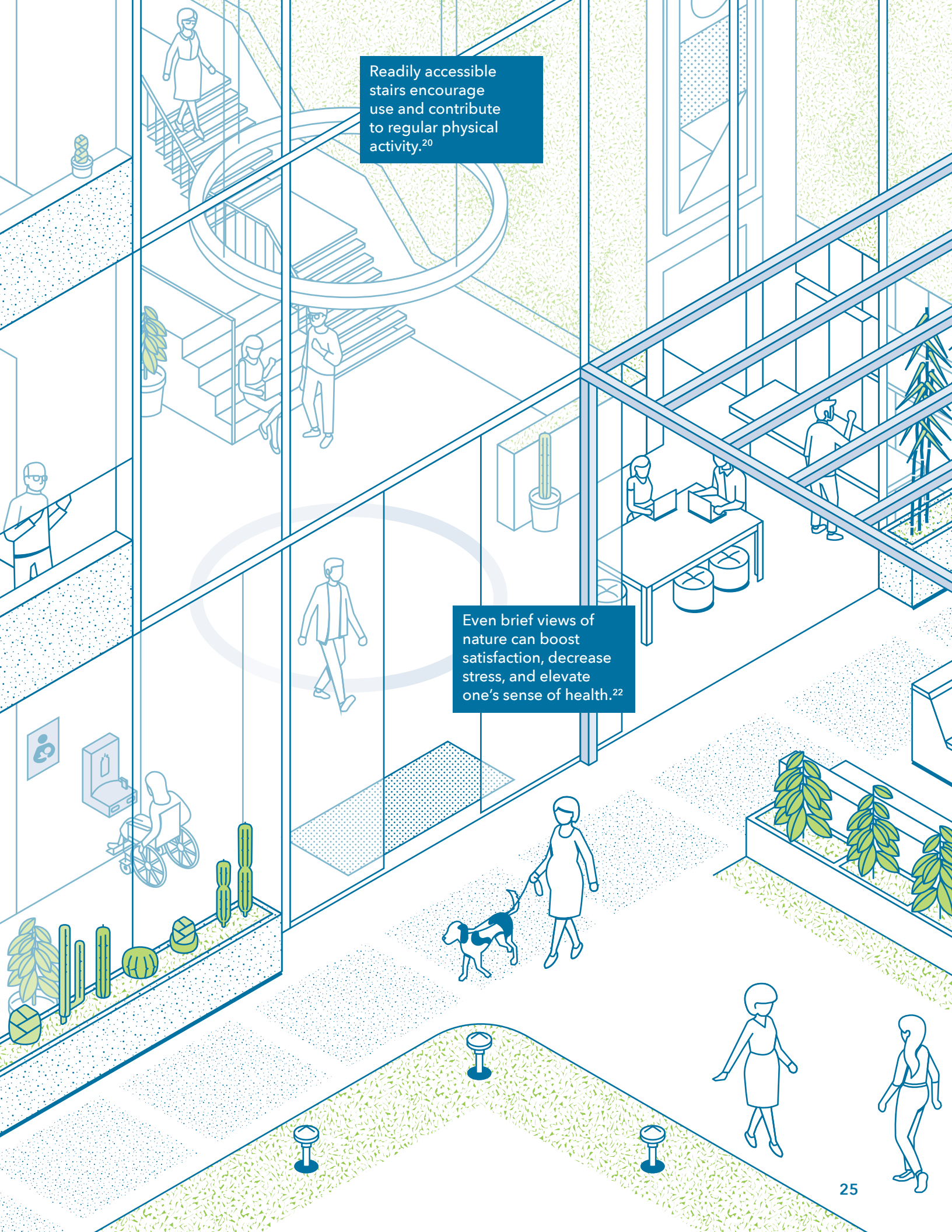
# 2.

## Designing, Renovating, or Fitting Out an Office Space

This section proposes office design considerations and strategies to raise with the property team and outside design consultants who will help see that office plans are transformed into reality.

Employees are more likely to take sick time if they are in offices with poor light quality and views.<sup>21</sup>





Readily accessible stairs encourage use and contribute to regular physical activity.<sup>20</sup>

Even brief views of nature can boost satisfaction, decrease stress, and elevate one's sense of health.<sup>22</sup>

## Building Out a Leased Space to Prioritize Health and Wellness



Perkins and Will San Francisco Office

**After the challenge** of selecting a suitable office location has been met, and a lease is signed, the next major step is to determine how the office environment will look, feel, and function.

Many of the following health-promoting concepts are applicable and scalable for those already occupying an office space, and especially for those who intend to fulfill a tenant improvement plan.

This section divides design and operational strategies into two distinct sections, “Build Out” and “Fit Out.”

For those who have yet to occupy a space, we have bundled strategies as “Build Out.” These strategies are, generally, more intensive, and are best taken up early with design consultants, when the office space is relatively raw and design schemes are malleable.

For those who are currently occupying an office, but desire to make more modest retrofits, we have bundled strategies as “Fit Out.”

Under either scenario, it is important to communicate health priorities with external consultants, highlighting preferred strategies contained within this manual.

# Internal Common Break Spaces

## Lunch & Break Spaces

**Allocating space for social and break activity in the workplace is important for a number of health outcomes.**

Break areas provide an essential space for employees to strike up conversation, unplug, and take in a meal.<sup>23</sup> Break spaces can increase productivity by keeping lunch-time within the office but away from a desk. Amenities can run a range of budgets and design preferences, but at a minimum, remember to include at least seating and tables for socializing and eating, and sinks, microwaves, and refrigerators for meal prep.

## Multi-Purpose Spaces

**Multi-purpose rooms can be formalized in nearly any work environment.**

A sparingly used conference room is often the obvious choice, but any delineable space where furniture isn't fixed and there's adequate space to accommodate a range of wellness programming will work. Unlike an exercise facility or permanent fitness amenity, a multi-purpose room is a dedicated space that has no fixed purpose, and can instead accommodate a range of functions such as meetings, yoga, or meditation.

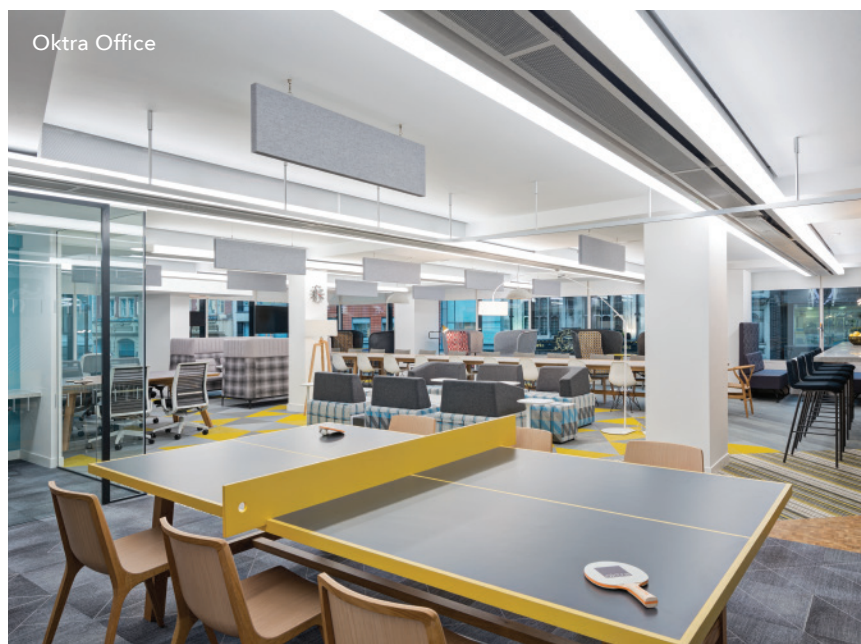
On the spectrum of providing fitness facilities at the office, this strategy is the least cost and labor-intensive, and by its very nature, does not need to consume other, day-to-day office functions.

- At a minimum, a multi-purpose room should be a *room*, with doors and/or partitions. The multi-purpose room should have physical and visual barriers so as to not distract those not participating, and to lend a sense of privacy and focus to those who are.

- The multi-purpose room is best outfitted with moveable furniture choices, such as foldable or stacking chairs, rolling tables, and other convertible and compactable equipment.

- This strategy is well-aligned with programming. The intent of creating a multi-purpose room within the workplace is to maximize employees' exposure to wellness programming, and offer a convenient alternative that can save time—anything from yoga and meditation workshops, to lectures and cooking demos.

- Find alternative, suitable spaces in the building if the tenant space is not accommodating. Work with the property team to schedule use of ancillary spaces, such as basement conference rooms or building common areas.



Oktra Office

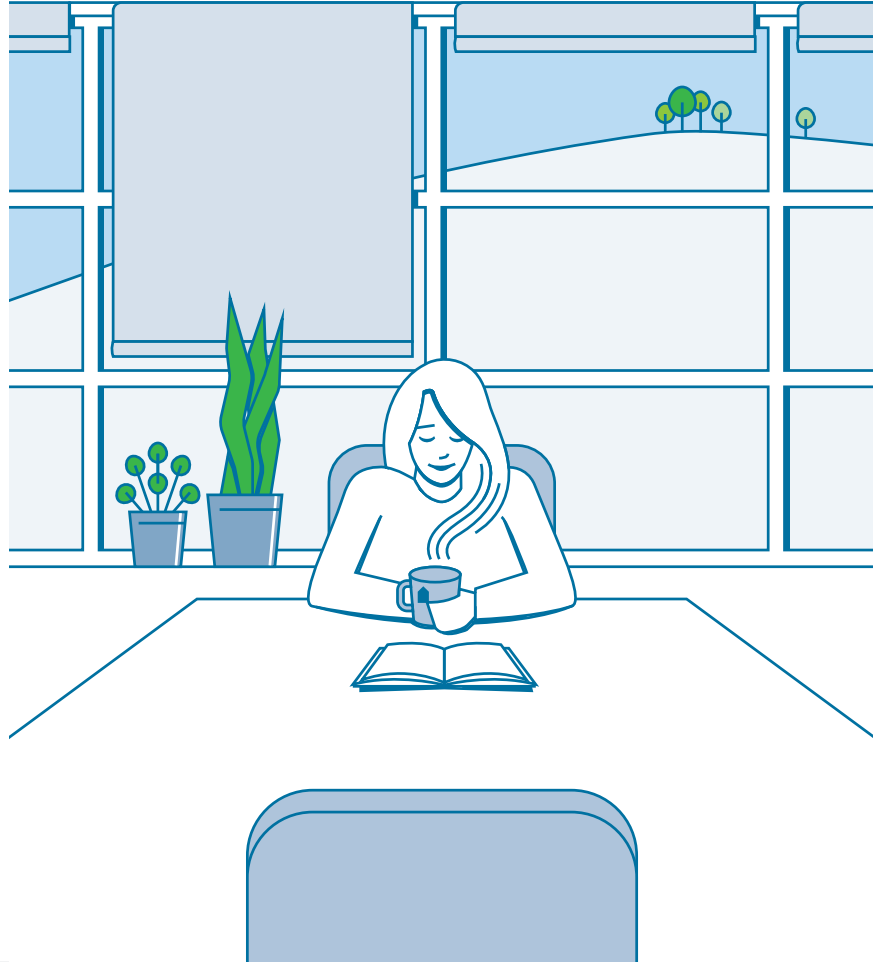
# Private Spaces

## Dedicated Quiet Rooms

**Sometimes employees need to escape the noise, distraction, and stress of the office.**

Workloads can quickly escalate, induce anxiety, and cause an employee to feel overwhelmed. Providing a quiet, private space to disconnect and recharge can both reduce stress in the short-term and be beneficial to overall wellbeing in the long-run.<sup>24</sup>

This strategy is implementable in any stage of occupancy. When building out, there is an opportunity to explicitly provide this amenity, meanwhile if outfitting a currently occupied space, practically any office or private room can be adapted, provided it adheres to the minimum design requirements outlined below. If the leased tenant space lacks a suitable area, take up the concept with a member of the property team; they might be able to offer an alternative within the building.



- A quiet room should be viewed as a dedicated, comfortable, and quiet space that is entirely shielded from public view. Additionally, the room should be reserved for employee use, including meditation, contemplation, prayer, and mental recharge.
- In creating a quiet space, consider design approaches that can mitigate exterior noise, including soft, sound-absorbing materials.

  - It should offer a restorative interior environment, replete with comfortable seating, exterior windows (if possible), and the ability for users to lock and/or signify the room is “in-use.” The quiet room should not be empty, minimally-appointed, nor an unoccupied office.
- Borrowing from the research on restorative spaces, the environment should incorporate biophilia (a design approach that incorporates natural elements, such as potted plants, living walls, and water features).

## Lactation Rooms

**Allocating a space for new parents creates a parent-friendly environment, and is shown to have significant positive benefits for working parents, including an increase in productivity and a decrease in health claims.<sup>25</sup>**

A lactation room is a *private* and *dedicated* space (other than a bathroom) which may be used by regular occupants to express breast milk. The design of this space must entirely shield the room from public view, include a lockable door, and offer seating, a table, an electrical outlet, sink, and refrigerator.

□ If wanting to provide this amenity as part of a retrofit, a lower-cost alternative might be a lactation station. Unlike lactation rooms, stations are a private and fully enclosed area or pod, and do not require a sink and refrigerator (provided there is easy access to both within close proximity and on the same floor). However, this space should still, at a minimum, offer a chair, table, and electrical outlet where occupants can plug in a breast pump. Stations are less desirable than private lactation rooms, but are still shown to offer health benefits.

□ For smaller companies, prioritize creating at least one lactation station within the boundaries of the tenant site. For larger companies who require significant space needs, it is recommended that lactation rooms/stations be offered in a ratio of one for every 200 occupants.



Cambridge Innovation Center

## Office Staircases

If the leased tenant space includes more than one occupied floor, punching through the floorplate with attractive, open, interconnecting stairs will drive people to move vertically by stairs, and will free up much-needed elevator space for those who actually need it. Stair use has been shown to increase by 50% when they are located in highly visible areas and designed with user comfort in mind.<sup>26</sup>

If attractive, open stairs between tenant floors are not, or cannot be, an option, then attention should be turned to the stairs that do exist between floors, and transforming those into a health-promoting asset.

As discussed throughout the manual, stair access is essential. By completing step one—opening stairs to regular occupant use—attention can be turned to creating a pleasing and inviting stairwell environment. Design can be harnessed in myriad ways to turn an otherwise dark and dull stairwell into one that is inviting. As a general rule, approach enclosed stairwells with the same design mindset as all other facets of workplace design. Stairwells should ideally offer the same quality finishings and furnishings as all other workplace common areas. The stairwell doesn't have to be a work of art—but it also needs to feel like much more than a utilitarian afterthought.

The following stair design ideas run a range of price points. The greatest priority is in addressing safety, visibility, and comfort, and from there move on to more cosmetic approaches. The below tips are listed from highest to lowest priority.

### 1

**Lighting:** ensure light-levels within the enclosed stairwell are consistent and match light-levels on all work floors. Consider incorporating energy-efficient lighting, or sensors that can activate lighting through movement.

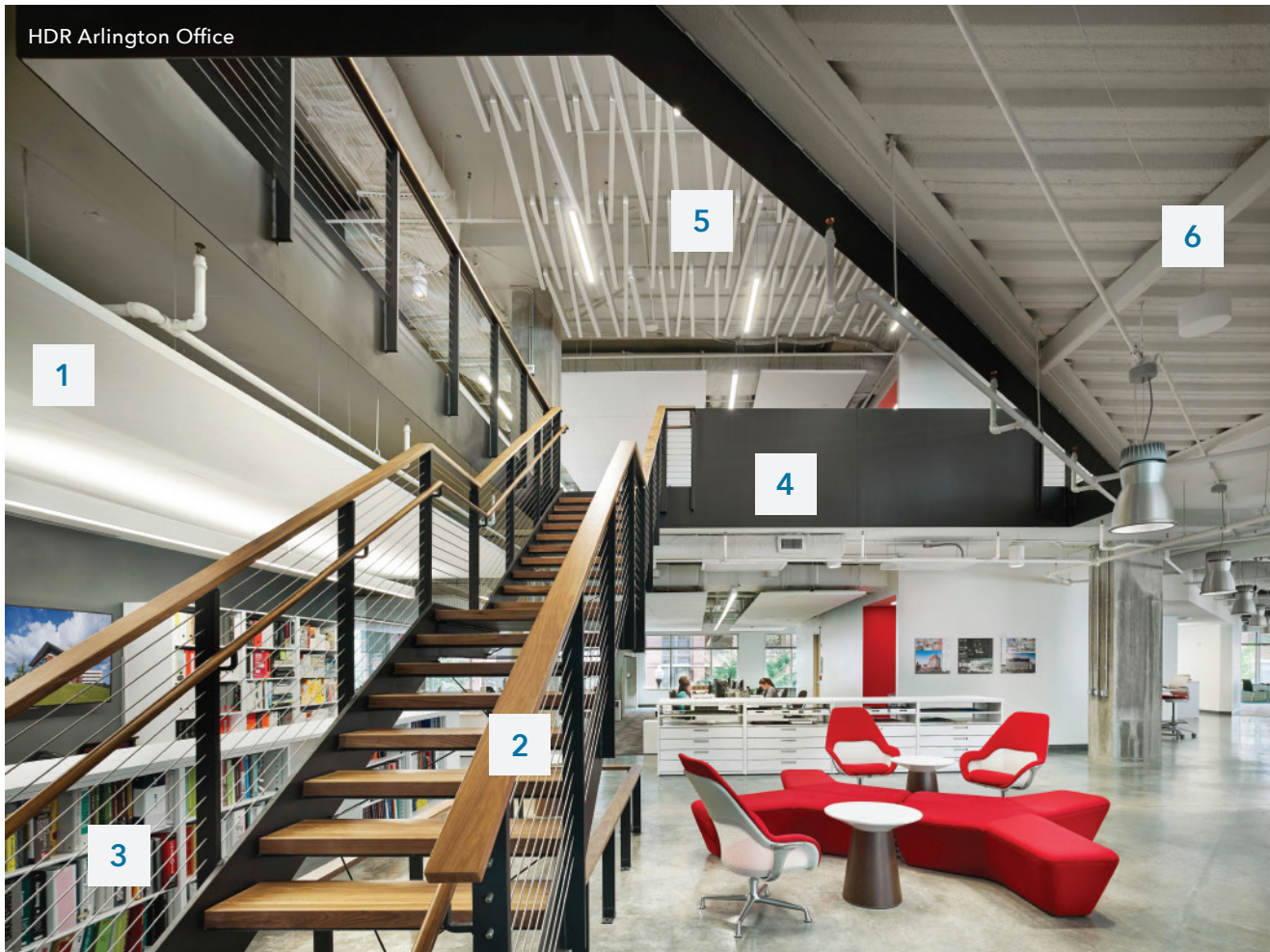
### 2

**Safety enhancements:** provide hand-rails and rubber treading to facilitate any mobility issues or in the event of an emergency. Ensure that there is substantial emergency lighting (through glow strips or other means).

### 3

**Increase visibility:** integrate code-compliant glass within the stairwell doors, cut larger entrances, and/or create open stairwells.





## 4

**Moderate temperature:** ensure the heating and cooling environment in the stairwell is as regulated and comfortable as the building floor.

## 5

**Decorate the stairwell:** paint walls a bright color, install creative lighting, create a mural, or hang artwork to allow the environment to feel pleasing and finished.

## 6

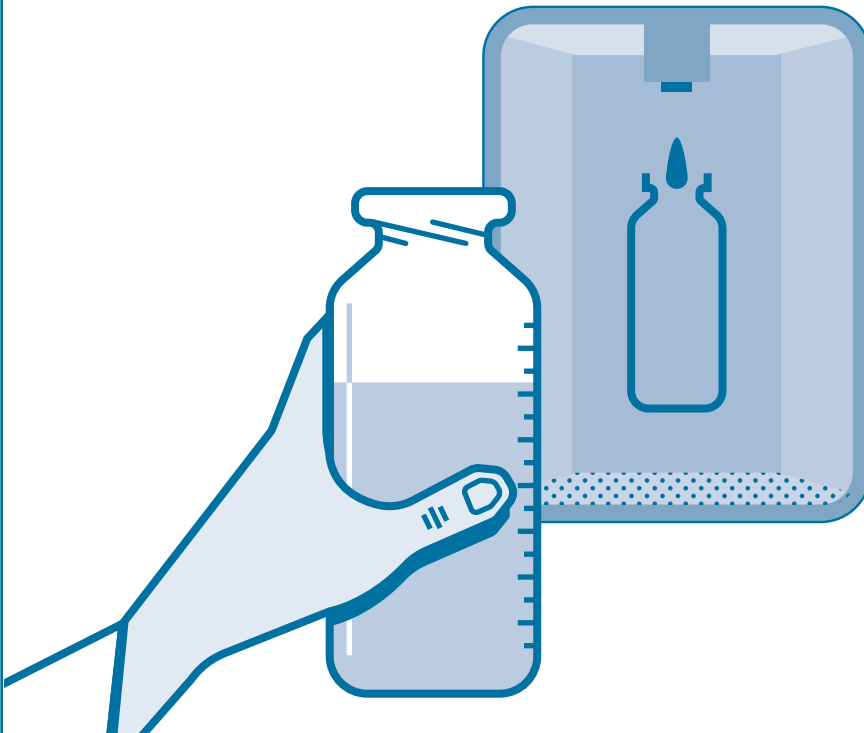
**Install a music system:** take decoration a step further and enhance the sensory experience of stairwells by piping music.

## Accessible Water Supply

Research shows that the availability of free water encourages its consumption, subsequently improving hydration and decreasing the consumption of sugar-sweetened beverages, such as soda and artificially sweetened juices and energy drinks.<sup>27</sup>

A decrease in sugary beverage consumption has direct impacts on levels of obesity and overweightness, and decreases associated health problems. Accessible water sources can unlock a chain of positive benefits for the office.

- Provide at least one source within the build out of the office that is both free *and* accessible to employees with disabilities. Ensure that access to water sources complies with a rigorous international standard, such as the Americans with Disabilities Act (ADA) or Accessibility for Ontarians with Disabilities Act (AODA) guidelines.
- Provide an in-office refilling source that is outfitted with a unique faucet or dispenser that can facilitate frequent water bottle refilling trips, and can dispel any issues that employees may perceive about drinking water straight from a sink faucet.



## Acoustic Comfort

**Acoustic comfort—essentially, the mitigation of excess and unwanted noise—is directly linked to physical and mental health, and unsurprisingly, to productivity and satisfaction within the workplace.<sup>28</sup>**

- Create a space that shields occupants from excess exterior- and interior-sourced noise and provides optimum space for focus.
- Incorporate soundproofing materials into the design of partitions, conference rooms, windows, and/or other areas of activity.
- Utilize sound and vibration-absorption materials like acoustic panels and soft materials.
- Seek best practices for minimizing exterior-sourced noise, especially multi-paned windows along the building exterior where noise-emitting sources are most intense (e.g., if the building abuts a highway or rail line).

## Office Configuration

**Configure workspaces and office furniture to maximize daylight and views throughout the day.**

Shifting workspaces to nearest the window can be a cost-effective means of maximizing employees' exposure to natural light and can offer frequent glimpses to outdoor nature.

- ▣ If the office utilizes an open floorplan, concentrate a majority of workspaces to nearest the windows or floor areas that receive natural light. Avoid lining exterior-facing walls with offices.
- ▣ Minimize partitions, tall barriers, and other visual obstacles, especially those over 3.5 feet, as those are considered to block daylight and impede sightlines to windows.
- ▣ If dividers must be placed between workspaces, consider using glass or clear materials.
- ▣ Provide a variety of workspace choices—from communal seats and social spaces, to active workstations and reservable rooms. Offering choice helps employees determine what is best for their focus and productivity.

## Shading and Light Levels

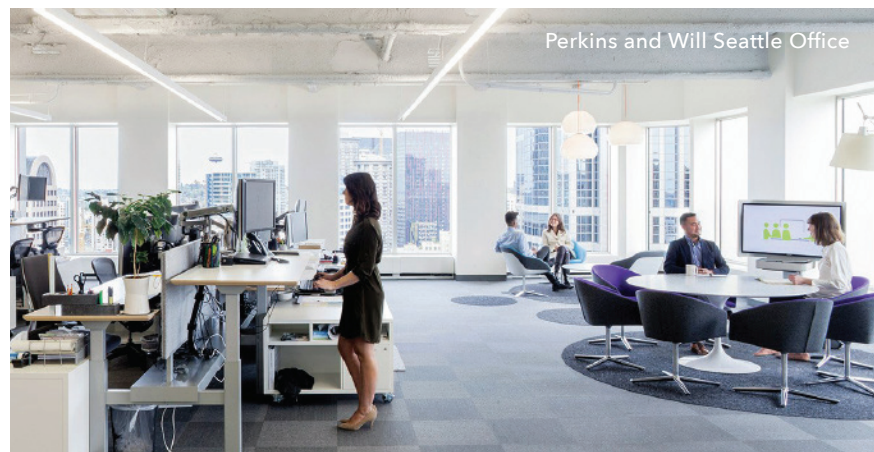
**Having the ability to control direct light within a workspace is shown to increase comfort and one's ability to work, and also provides a sense of agency by empowering employees to make individual decisions about their workspace.<sup>29</sup>**

- ▣ Operable shading can take many forms: curtains, manual blinds and shades, and other light-limiting devices. Select what is most suitable for window design and budget.
- ▣ Areas where employees regularly work should be prioritized over communal/ social spaces, since the studies underpinning this strategy are strongest in terms of the productivity that stems from enhanced comfort.

## Thermal Comfort

**As with the ability to control light levels, direct thermostat control can yield increased productivity, wellbeing, and contentment. Environments that are either too hot or too cold, too humid, and/ or too stale, can cause discomfort and drifting attention spans.<sup>30</sup>**

- ▣ Provide direct access to thermostats so that occupants can control and maintain thermal levels.
- ▣ Use signs to educate about the optimum thermal temperature zone, which for most people is between 20 and 24 degrees Celsius (68 to 75 Fahrenheit).
- ▣ Use a de-humidifier and/ or humidifier to maintain consistent humidity levels for the workplace. Above 50% humidity can create a sense of stuffiness, lead to respiratory issues, and be a feeding ground for harmful bacteria. Below 50% humidity is perceived as overly dry.



# 3.

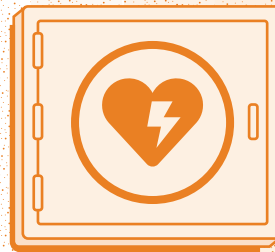
## Strengthening Existing Spaces by Shifting Priorities and Establishing Policies



Reducing costs for healthy snacks and vending results in increased consumption of healthier foods.<sup>31</sup>

Improved ventilation results in increased productivity.<sup>33</sup>

This section addresses opportunities that require less overall effort to implement compared to the approaches identified in Stage 2.



Well-located, easily accessible Automated external defibrillators (AEDs) are shown to greatly help in the event of cardiac arrest.<sup>32</sup>

## Improving an Existing Space with Easier-to-Implement Interventions

**Any tenant**, at any stage of office space occupancy—whether considering a move to a new location, or fixed in a long-term lease—can make modest improvements to the workplace.

Because the following strategies are relatively straightforward, they can be implemented in a short time span and with little need for outside guidance or property team approval. The following strategies should mostly fall under the purview of the tenant and within the stipulations of lease terms. As with all implementation, it is recommended that you engage the property team and/or facilities manager and obtain their permission. Select strategies will likely require that you collaborate with building managers in order to facilitate installation.



# Signs and Prompts

Eye-catching, persuasive, and informative signs and prompts can help promote a shift toward healthier behaviors. Signs are an impactful *and affordable* means of raising awareness about the choices people make throughout the course of the day.<sup>34</sup>

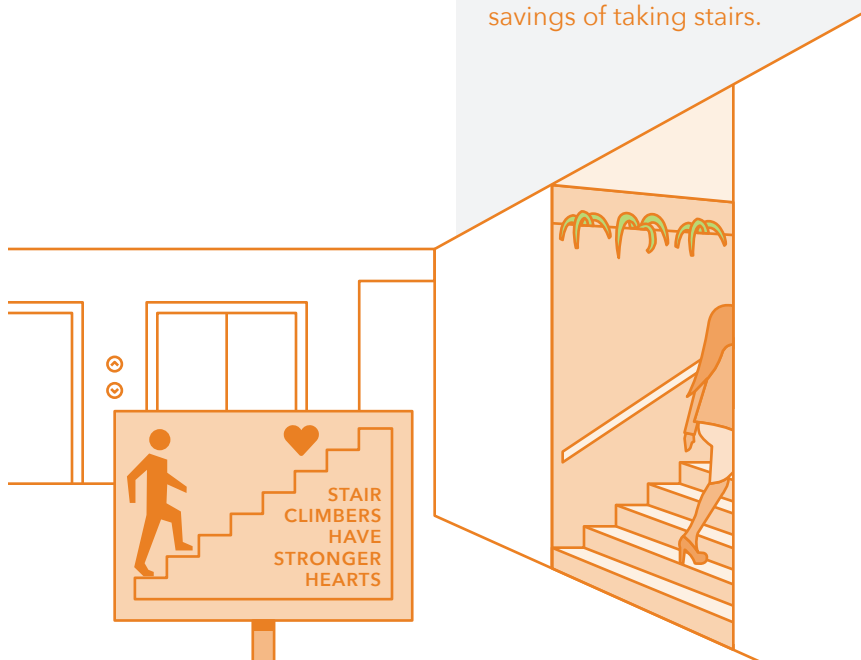
## Stair Use Signs

**Studies have found that simply viewing motivational signage encouraging stair rather than elevator use can prompt significant increases in the percentage of people who opt for the stairs.<sup>35</sup>**

When considering the opportunity to change daily behaviors in high volume commercial buildings the impact is profound. Stairs present a practical and effective method to incorporate physical activity into daily life.

- Place signage where it will be most visible and compelling. Don't put signs in obscure locations that the eye will avoid; rather, place signs right at the elevator call button, where there's the greatest chance of inciting behavior change.

- Go beyond stale text-only signs. Use graphic design to create a playful, eye-catching, and motivational sign. Speak to employee sensibilities and message the health benefits, calories burned, convenience, and/or energy savings of taking stairs.



## Sanitation Signs

**Restrooms offer another context where signs can incite a behavior change and promote healthy practices.**

It is well-known that hand-washing prevents the transmission of disease and bacteria. This has an overt impact on improved health for all employees, but also leads to decreased employee absenteeism—a benefit to employers.<sup>36</sup>

- Legitimize healthy habit signs by ensuring signs are informative, eye-catching, and permanent.
- Signs should be placed at or near sinks, and should be composed of material that can withstand regular water and cleaning.
- Move beyond basic “Please Wash Your Hands” language. Motivate users by telling them *why* it matters—include stats and/or other motivations.

# Signs and Prompts

## Healthy Habits Signs

Office entrances and break areas provide an important opportunity to signal healthy habits by placing signs in highly trafficked areas.

Displayed signs can support a range of office policies and procedures, and can communicate corporate benefits and amenities, such as providing a smoke-free workplace and/or offering healthy snacks as an employee perk.<sup>37</sup>

- As with all other signs, create attractive and permanent signs that easily and effectively communicate key messages.
- Place signs where they will be most effective, such as immediately adjacent to snack bars and break areas.

## Nearby and On-Site Amenity Signs

Using signs to advertise on-site and nearby amenities, distances to amenities, and how many calories are burned along the journey can build interest and contribute to an office environment that celebrates walking.<sup>38</sup>

Advertised amenities should include the elements of daily life—parks, gyms, local restaurants, community spaces, walking trails, fitness classes, or other activities, places, or programs that could potentially motivate your team to step away from their desk and venture out by foot or bike. Additionally, be sure to advertise amenities within the property. Reminding occupants which choices are immediately on site could compel some to spend a lunch hour being active with choices that are quick and convenient.

- Calculate the distance from the main building entrance to amenities using an online mapping tool. Similarly, there are numerous online tools that can calculate the average number of calories burned for an adult. In today's fast-paced culture, signs can offer compelling motivation to walk an extra half hour here or there.
- Legitimize this strategy by making the signs permanent or semi-permanent. Rather than a flyer posted to the break room fridge, spend nominal dollars to mount, frame, or otherwise formalize the graphic display. Make it visually appealing and interesting.
- Display signs in high-traffic areas: along busy corridors, in break areas, in lobbies, and near restrooms.
- Try to keep distances relatively short and practical. The standard rule of thumb applies: advertise amenities that are within ½ mile or 800 meters walking distance, which is roughly a 10-minute walk.





# Work Areas

## Active Workstations

**Prolonged sitting is shown to be harmful to health.**

With much of today's work requiring extensive desk and meeting time, it is often difficult to achieve a minimum level of physical activity during working hours. Providing active workstations can help reduce employee inactivity.<sup>39</sup>

An active workstation includes office furniture that specifically promotes activity, including workstations with treadmills or bicycles, convertible sit-stand desks, under-desk elliptical machines, portable desk pedals, and stepper machines. Active workstations range in cost, and can grow in expense proportionate with quality and complexity. However, it's important to recognize that there are minimum measures a company can take, and offering even a limited number of active workstations can greatly promote activity and instill a belief that one's company values wellbeing.

- Don't be turned away by presumed cost. Ideally, every employee would have a dedicated active workstation, but, understandably, it isn't feasible for all budgets. Consider piloting active workstations that can be reserved or made available for any portion of the workday. Changing behaviors starts with providing choices.



## Maximize Daylight

**The very layout of office furniture can contribute to a health-promoting office environment.**

If any flexibility exists in how workspaces are organized within the tenant space, consider reconfiguring desks to the areas of the office that receive steady daylight. Even a nominal shift in the layout of the office can bring about greater exposure to daylight, views, and can improve wellbeing.<sup>40</sup>

- Work up to a recommended ratio of one active work station for every two regularly seated employees.

## Office Walk-Off Mats

**Office mats capture pollutants before they spread.**

While the building lobby may employ a more complex system (using a combination of mats, slotted systems, grills, and grates) individual tenant spaces can adopt a similar approach, placing mats directly at office entrances. Research points to a significant decrease in occupant exposure to particulates, pollens, and other illness-causing agents when they are trapped by specifically-designed mats.<sup>41</sup>

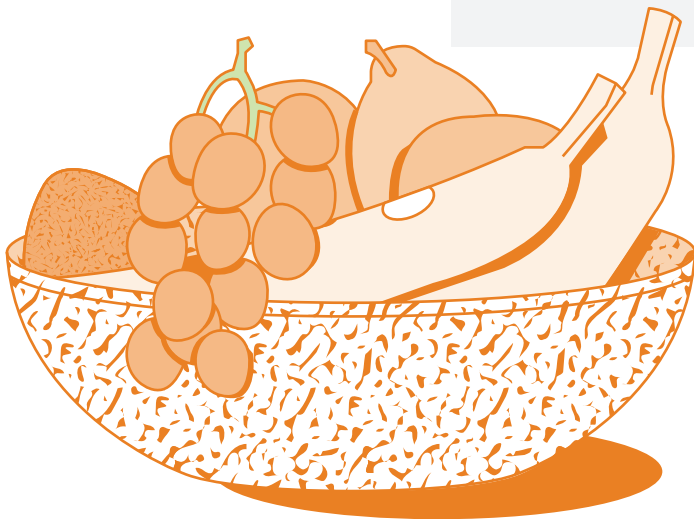
- Depending on the amount of space available, the dimensions of the mat(s) should be long enough to trap several strides of grime from the feet of those entering the tenant space. A good rule of thumb: the mat should be as wide as the entry door itself, and a minimum length of 5 feet (or 1.5 meters) deep in the direction of travel.
- An entryway mat is only as good as its level of cleanliness. Mats should be regularly cleaned and vacuumed, at least once per week.

## Healthy Foods

### Introducing healthy eating habits in the workplace has the potential to spill over into all aspects of daily living.

Cultivating a work culture that celebrates nutritious food can reap significant benefits.<sup>42</sup> A cornerstone of this cultivation is in, unsurprisingly, the types of foods that are offered and the office policies that complement healthy eating. While employees are free to consume the foods that they enjoy, the following strategies recognize that people also respond to their environment, and like much of this manual, are centered on offering healthier choices throughout the day. Additionally, these strategies supplement/reiterate a number of healthy food and beverage policies found in the next section of the manual.

- Offer in-office healthy snacks and beverages. Station wholesome, nutritious snacks, and low/no calorie beverages in the office as an alternative to typical vending choices and/or the personal snacks employees may habitually consume. Pairing healthy snacks with signs promoting the perk can help engender positive workplace feelings and shift behaviors around snack consumption.
- Look to healthy food and beverage standards when stocking vending machines. Work with suppliers to provide wholesome alternatives, or, if contractually difficult, consider cancelling vending contracts and replacing with healthy, in-office snack alternatives.
- Provide free and accessible water in the workplace. Explore ways of enhancing this offering, including flavoring water with fruit and/or providing an in-office sparkling water maker.
- Enroll the office in a Community Supported Agriculture (CSA) program, connecting employees with fresh and local produce and farm products. CSAs deliver frequent, scheduled shipments of produce directly to office drop-off points, eliminating any inconvenience of shopping at a grocery store. Further, evaluate the possibility of subsidizing memberships in order to incentivize increased enrollment and put as much healthy foods into the hands of employees as possible.
- Publicize any nearby healthy food offerings, such as farmers markets or food stalls. Ensure that employees are aware of the operating schedule, offerings, and directions.



# 3.5

## Building Policies & Procedures

**This final section** outlines the policies and procedures that are shown to improve health. Whether you are a decision maker in a tenant space, or a member of a property team overseeing building operations, there are numerous tactics collected on the following pages that can boost wellbeing from behind the scenes.

These policies may be implemented either independently in the tenant space, or more comprehensively at the building scale. This manual presents all policies and procedures as a running list, recognizing that situations and permissions differ from building to building.



## Healthy Eating Policies & Tips

**In-office food and snack offerings present a clear opportunity to promote healthier, more nutritious habits.**

Adopting a healthy food and beverage standard helps limit access to unhealthy foods and sugar-sweetened beverages by minimizing, or even eliminating such selections, promoting wellbeing and decreasing obesity and related diseases.<sup>43</sup>

- Codify a healthy food and beverage standard into an official policy, and share with all employees and/or vendors who are regularly charged with overseeing orders.
- Develop a list of approved caterers and suppliers, and limit purchasing to only those sources that are familiar with company policy.
- Use contracts and vending agreement to limit unhealthy snacks and beverages available for purchase in office vending machines.
- Work with vendors to develop a pricing scheme that incentivizes healthier food choices (e.g., pricing calorie free beverages at discount compared to their sugary counterparts).
- Use “choice architecture,” or the practice of making the healthy choice the obvious choice. This can be achieved through vending machine display (e.g., signs and icons) and item placement (e.g., healthiest foods at eye level).
- Always provide access to free drinking water in all break, snack, and meeting settings to limit the desire for high-calorie beverages.
- Work with property team(s) to develop similar parameters and promote healthy choices for all vending and snack areas that are external to tenant spaces.

For guidance on nutritional parameters and healthy food standards, please refer to page 54 in the Resources Section. Adopting such a policy should apply to all in-office foods, including vending areas, snack/break areas, and catered meals. The policy should ensure that all company money—and, increasingly, employee’s money—be spent on wholesome, nutritious food that meets stringent health guidelines.

Etsy Headquarters



## Regular Cleaning Schedules

**Restrooms and break areas should be kept clean.**

Regularly cleaning spaces within the office that are prone to germs and pathogens can reduce allergens, lessen the risk of getting sick, and decrease absenteeism.<sup>44</sup>

- Develop and implement a policy that includes frequent cleanings of shared office spaces: at least daily cleaning(s) for bathrooms and weekly cleaning of refrigerators and freezers. When building leases include cleaning services, stipulate a cleaning frequency at least as often as daily for restrooms and weekly for break/kitchen areas.
- Dispose of unclaimed foods on a weekly basis to prevent exposure to food-borne illnesses.
- In alignment with a green purchasing and/or indoor air quality (IAQ) plan, limit cleaning products to those that are non-hazardous to occupant health. Look for packaging that clearly indicates environmental friendliness, such as ECOLOGO, EPA's Safer Choice Logo, and products certified by the Global Ecolabelling Network (GEN).



# Commuting Policies

## Commuter Survey

Collecting and analyzing data on tenants' commuting preferences and frequencies is an important ingredient in determining appropriate building amenities and necessary infrastructure.<sup>45</sup>

Conducting a survey of commuting preferences is quick and low-cost. The data collected from a building-wide survey can be used to create or change policies, and monitor the impacts of those policies.

- The survey should be simple and direct, only requiring a few minutes of respondents' time.
  - The questions should be framed around regular transportation patterns, seeking to garner how many people utilize the enumerated modes (e.g., walking, biking, solo driving, carpooling, telecommuting, etc.), and at what frequency (e.g., daily, 3x weekly, etc.).
  - Strive for a high response rate. It's unlikely that the survey will represent 100% of building occupants, but aim for a significant percentage—
- collecting a minimum of responses from 30% of occupants will provide a solid baseline from which to make decisions.
- Weave a commuter survey supplement into other, established surveying, such as annual tenant satisfaction surveys.
  - Consider asking hypotheticals about how employees would prefer to commute, or what options they would be open to exploring, to learn current commuting habits as well as preferences.



## Fair Market Pricing for Parking

### Free, or even below-market parking fees incentivize personal automobile commuting.

Failing to adequately charge for parking is shown to artificially lower the cost of driving as compared to travel by other means. Enforcing a “fair market value” passes the actual cost onto those who drive, and can encourage occupants to take other, more active choices, such as public transit, carpooling, or biking.<sup>46</sup>

- Investigate the cost of parking in nearby facilities; take the average of these parking fees to form a “fair market value” and ensure that any on-site facilities are similarly priced.
- For companies that cover the cost of parking as an employee benefit, consider offering an equal benefit that subsidizes the cost of transit passes for those who choose more sustainable, active modes. Similarly, subsidize bike maintenance, insurance, etc., developing a range of commuter benefits that appeal to all travel modes. This can create and perpetuate a motivating cycle where more people opt to drive alone less often, and doesn’t leave anyone out of the commuter benefits conversation.
- Utilize commuter survey findings to strategize the rollout of any new policy, including a communications plan to develop the rationale for incentivizing non-automobile options.

## Alternative Commuting Choices

### Alternative commuting choices reduce solo driving, which reduces individual costs incurred for driving, and can lower employee commuter stress.

It also corresponds with a growing ethos of social and environmental responsibility. One method of encouraging carpooling is to designate carpool spaces in highly visible and prized parking areas.

- Designated parking spaces are most enticing when located closest to the building entrance and are reserved exclusively for those who carpool.
- As a general practice, a minimum of 5% of total parking spaces should be reserved for carpooling building occupants. However, this percentage may increase depending on commuter survey response rates (e.g., it is best practice to exceed the demand (i.e., provide more than what is required) by at least 1% of your commuter survey results).
- Signs can help broaden the appeal of commuting together. Use signs at the prized parking spaces to publicize the effort, and place signs within the property to pique interest and create buzz.

# Smoke-Free and Tobacco-Free Policies

## Smoking is a leading cause of preventable death worldwide.<sup>47</sup>

Smoke—whether inhaled directly or secondhand—should be prohibited, and banning tobacco should be strictly enforced within all interior and exterior office environments. Enforcing a comprehensive, explicit ban on all tobacco products is a measure that is shown to reduce tobacco use and is an essential component in reducing exposure to secondhand smoke, a fundamental piece of disease prevention.<sup>48</sup>

Smoke-free, tobacco-free, vape-free policies should be adopted, publicized, and enforced in all spaces.

- Place permanent signs throughout the building and full property, including at building and/or campus entrances, and in all parking lots and adjacent outdoor spaces.
- The property should not permit designated spaces for tobacco use. All tobacco use within the site should be prohibited.
- Policies, and signs declaring stated policies, should unambiguously apply to all forms of tobacco use and vaping, including cigarettes, cigars, pipes, electronic cigarettes, and smokeless tobacco, including chewing tobacco.





# Optimizing Air Quality

## Indoor Air Quality Plan

**In addition to banning all forms of tobacco products, another integral strategy falling under indoor environments is the adoption of an Indoor Air Quality (IAQ) policy.**

Such policies identify the most common indoor pollutants, and provide benchmarks to ensure that indoor air quality improves and remains as high as possible over time.<sup>49</sup>

IAQ policies place restrictions on products within the workplace, primarily finishes and furniture, to limit off-gassing (the natural release of gasses from manufactured products) and noxious odors caused from chemical sources like cleaning products. Such policies also should address how a building's property team manages air quality, including sources of pollutants, proper ventilation, and air filtration.

- Policies should outline technical specs and details on how the building manages air quality, including chemical ventilation, mechanical exhaust, indoor plant maintenance, waste disposal, hygienic storage of foods, etc.
- IAQ policies should provide rules for product sourcing, prohibiting harmful contaminants.
- Monitoring is an important aspect of maximizing IAQ policy impacts. The IAQ policy should outline parameters for routine testing.

## Green Purchasing Policy

**Implementing a green purchasing policy helps boost the health-promoting aspects of an Indoor Air Quality (IAQ) policy.<sup>50</sup>**

Green purchasing policies provide a procurement framework and place limitations on the types of products and services that enter the workplace, from furniture to paper products and cleaning supplies, reducing potential harmful environmental impacts. Adopting a green purchasing policy is relevant both for property managers and tenants—with each having a vital role to play in ensuring the products that enter the workplace are health promoting and sustainable.

- Testing should utilize accredited air quality monitors and sensors to ensure safe exposure levels to Carbon Monoxide (CO), Carbon Dioxide (CO<sub>2</sub>), Formaldehyde (CH<sub>2</sub>O), Particulate Matter (PM<sub>2.5</sub>) and other volatile organic compounds (TVOC).
- Leverage positive testing results as an opportunity to educate employees and communicate healthy workplace practices.

- Develop a policy that plainly details methods for selecting products and services that are shown to reduce environmental impacts.
- Develop and/or adopt policies that mirror stringent global standards, such as ECOLOGO, EPA's Safer Choice Labels, and/or certified by the Global Ecolabelling Network (GEN). For new furniture products, seek out products that are endorsed by ANSI/BFIMA or equivalent standards.
- Strive for enforcing a 100% green purchasing framework, but phasing adoption is suitable if select contracts and/or vendors cannot become immediately compliant with the policy. The intent of such a strategy is to, in time, ensure all products and services comply with a high standard of health.

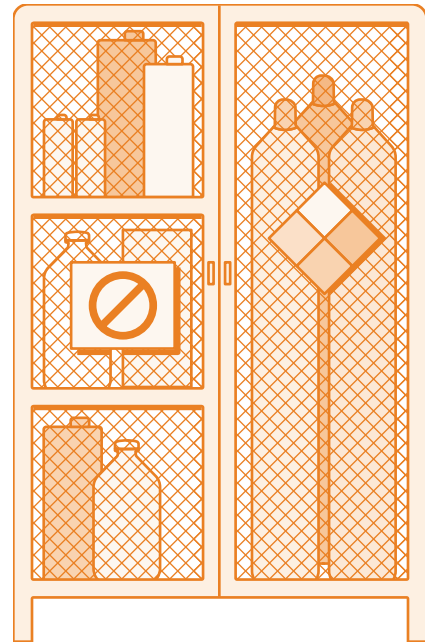
# Optimizing Air Quality

## Chemical Storage and Ventilation

**Proper chemical storage and ventilation is paramount in maintaining a high standard of air quality.**

Areas that typically produce chemical and/or mechanical fumes, including garages, janitors' closets, laboratories, workshops, salons, laundry rooms, and high volume copy rooms must separately exhaust in order to prevent building-wide circulation of polluted air.<sup>51</sup>

- Standard cleaning products should be contained within a singular, separated storage area, and not mixed within the footprint of occupied floors. This is less of a concern if such products are eco-friendly and/or approved under a valid green purchasing standard.
- If products are natural, eco-friendly and/or fall within green purchasing standards, their storage can be mixed within populated areas, as long as odors are not pervasive and/or distracting.



## Integrated Pest Management Plan

**Integral to office environments is the adoption of an Integrated Pest Management (IPM) plan.**

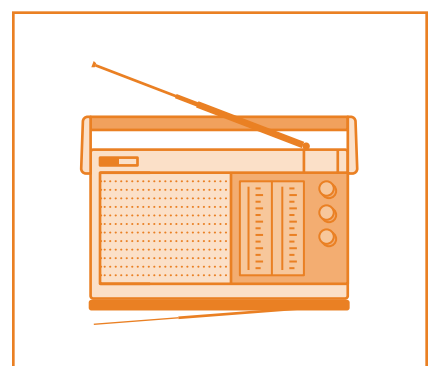
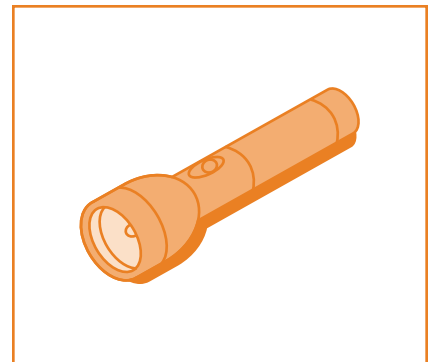
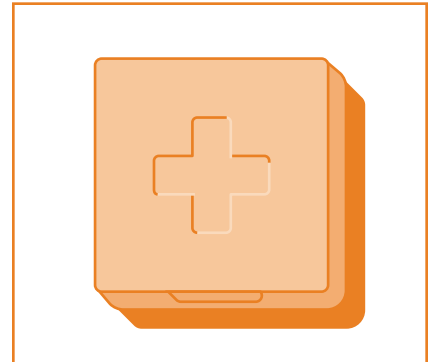
IPM plans assemble environmentally friendly, coordinated methods to controlling common pests—through both preventative and treatment strategies. IPM plans do not rely on a single technique; rather, they integrate methods through inspection, monitoring, and reporting. An adopted IPM plan is additive and complementary to an office IAQ policy—the two work harmoniously to create a healthy and safe office environment. Providing a pest-free work environment also contributes to workplace peace of mind, improving mental wellbeing.<sup>52</sup>

- There are varying degrees of IPM plans that can be implemented. Seek plans that require nonchemical approaches to sanitation, waste management, structure maintenance, physical barriers (e.g., screens and air curtains), altering pest habitats (e.g., clearing debris), using traps, and judicious use of pesticides.

## Emergency Preparedness

Emergencies happen, and impose heightened stress in their wake. Being prepared for emergencies can help equip responders to manage and mitigate emergency impacts, and can provide a sense of ease to building occupants who can feel confident in their company's and/or building's readiness. Multiple strategies and processes can be adopted, both by tenants in their respective offices, and at the building level by landlords, that can help provide clarity in the face of emergencies.<sup>53</sup>

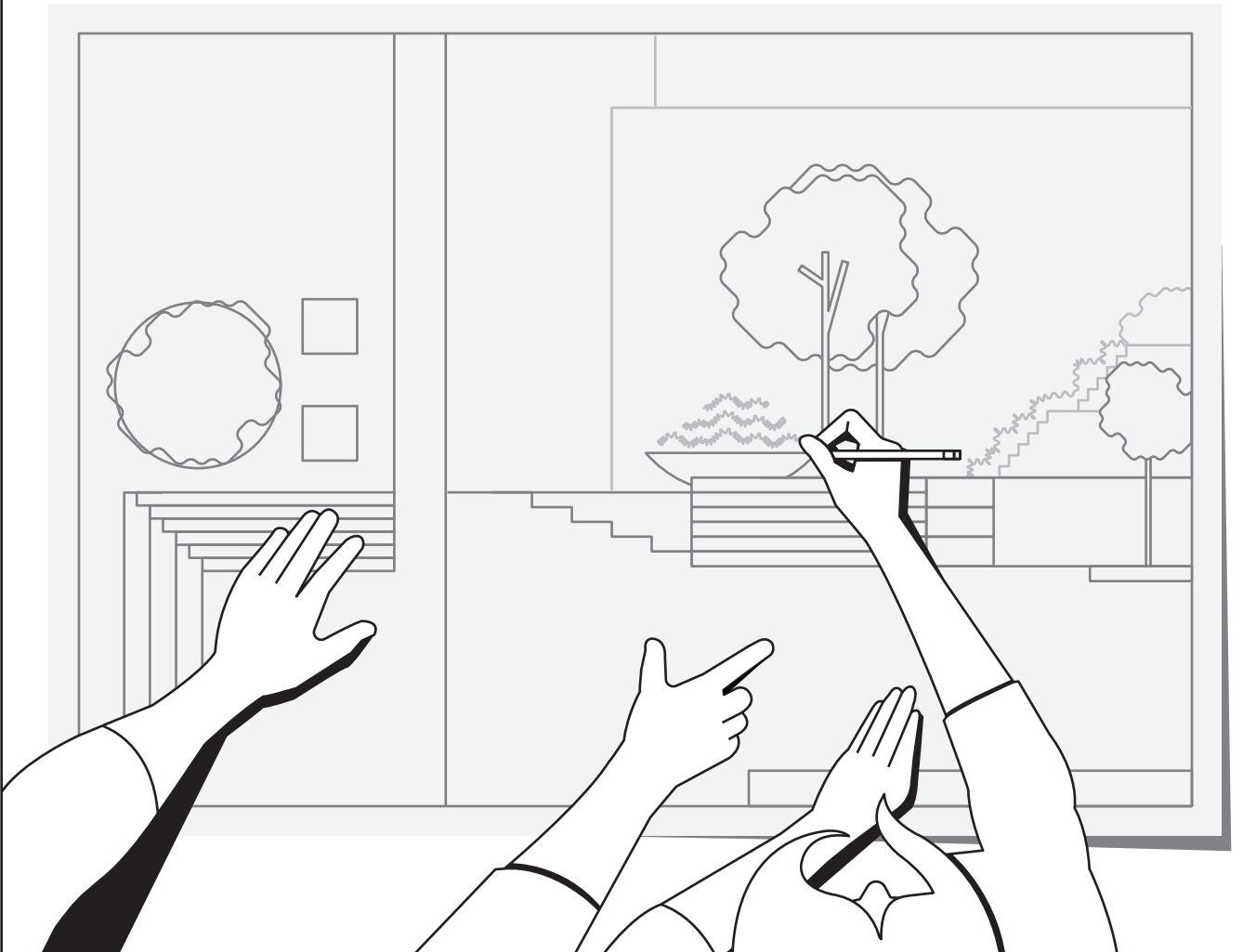
- Develop an Emergency Preparedness Plan that responds to at least one likely scenario for the geographic region. The plan should cover—at a minimum—the protective actions that need to be taken in response to a potential threat, including whether to evacuate or shelter, a plan for communicating during an emergency, identifying responders, and procuring and storing emergency supplies.
- Develop a communications plan as part of an overall Emergency Preparedness Plan. An emergency address notification system, or other mass communication device such as intranet or text-enabled notification system, is only as good as what it communicates.
- Regularly test communications system(s) to ensure good working order. Schedule trainings with relevant team members to verify familiarity with processes during emergency situations.
- Keep a regularly stocked supply of emergency items, and make it well-known where these items are stored. These items should be kept in easily accessible locations in the event staff needs to take immediate action. The stock of emergency items should include first aid supplies.
- Train staff to become a Certified First Responder (CFR), a designation given to staff who has undergone certification trainings for CPR or other first aid courses. Aim to have a minimum number of CFRs present throughout the workday to assist in emergencies.
- Affix Automated External Defibrillators (AED) in highly visible locations on every occupied building floor, and adopt a regular testing schedule based on manufacturer guidelines. Ensure that first responders are well-trained in using AED devices to prevent any misuse and/or injury, and can be called upon when the situation requires.



# From Ideas to Action

Now that you have reviewed the sections most pertinent to your current situation as a tenant, and considered the strategies most applicable and impactful, it is time to organize those ideas, and move into a plan of action.

If launching into a new office search, we recommend prioritizing the aspects and amenities within Stage 1, and ensuring that this list is central to discussions with brokers, leasing agents, and property teams. Strive for as many of the location qualities and building amenities discussed in this section as possible, balancing preferences with budget.



If strategizing an office improvement plan, share your prioritized strategies from Stage 2—or even an annotated copy of this manual—with your design and operations consultants, using these strategies as a framework to advance health within a refreshed workplace.

If seeking to improve workplace wellbeing without plans for relocation or renovation, use the policies, procedures, and interventions found in Stage 3 as building blocks to test concepts and shift behaviors within the workplace.

Positive impacts can occur at all scales and costs. Recognize what’s right for you and your workplace.



Park Place

# Next Steps

## 1. Gather Input on What to Achieve

As discussed in the introduction, initiating a conversation with management and colleagues is a vital first step. Solicit feedback, rally excitement, and build momentum through engaging with colleagues and synthesizing ideas in order to focus and refine workplace wellbeing goals.

## 2. Determine Whether You Need Outside Help

If a majority of your ideas and priorities fall within Stage 2 (“Designing, Renovating, or Fitting Out the Office Space”), it is recommended that you craft an RFP and solicit bids for external consultants. Experienced design professionals are best suited to optimize health impacts and ensure quality design and construction.

## 3. Develop a Dialogue with External Partners

As a part of the RFP process, seek submissions that provide ample opportunities for dialogue and decision making. While design consultants may be the experts, there is still room for feedback from employees—those who will actually occupy the space. A collaborative and staff-driven approach will garner goodwill, and instill a feeling among employees that management directly cares for the health outcomes of staff.

## 4. Consider the Value of Certifying a Space

Once construction has completed, you may see value in fully certifying the workplace with an existing, internationally recognized brand. Certification can ensure that maximum benefits are achieved through design and operational approaches, and can be used as both a benchmarking exercise to identify areas of improvement, as well as a marketing tool to message the health benefits accrued for employees.

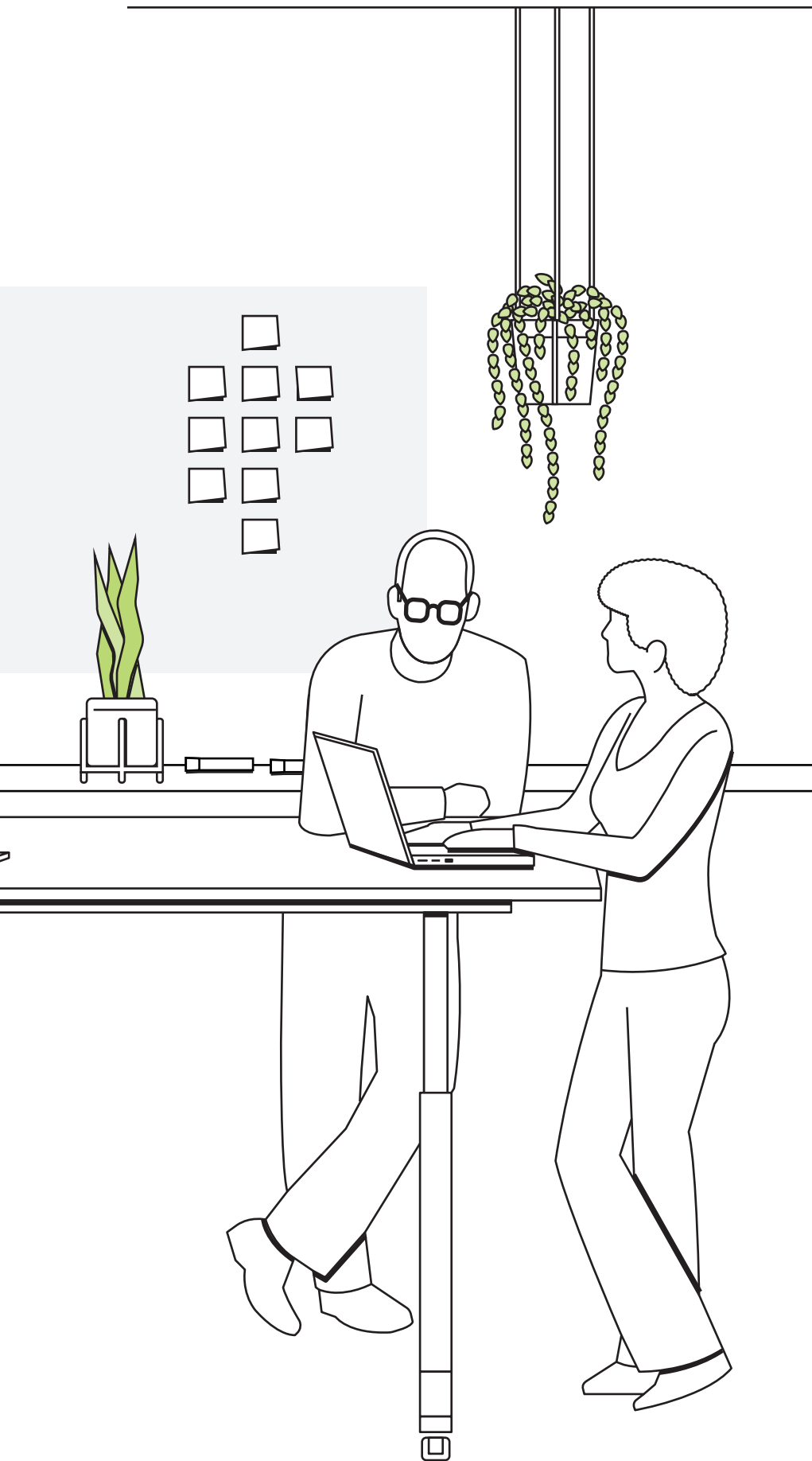
When considering a certification system, weigh the following:

**Suitability.** Seek a certification system that is most applicable for your office environment. Consider whether the system is targeted to single- or multi-tenant spaces, entire workplace buildings and campuses, and/or interior spaces. Furthermore, ensure that the certification system is applicable at multiple stages (i.e., that certification can occur for design plans and/or existing structures) and lacks or has minimal qualifying prerequisites.

**Cost.** Seek a certification system that is affordable, with a price structure that is flexible and incremental based on project size.

**Complexity.** Seek a certification system that is rigorous, but not burdensome. Unless external consultants will be hired to manage the certification process, seek out a system that can be overseen by existing staff, and





avoids needing subject matter expertise.

**Evidence-Base.** Seek a certification system that is rooted in improving health outcomes, with strategies stemming from rigorous scholarly, peer-reviewed sources.

## 5. Measure Progress

This manual proffers multiple strategies that can be implemented in phases, allowing project implementers to measure progress, evaluate success, and modify as necessary.

The takeaway: implementation is not the end. Rather, implementing health-promoting strategies, especially if in an existing space, should be viewed as evolving and incremental: test, evaluate, modify, and repeat. The key to a successful health-promoting workplace is to continually test concepts, improve the space, and regularly seek input. Scheduling quarterly input-sessions, or developing a multi-question occupant survey, provides a regular and anticipated platform to assess what is working, and what could stand to change.

## Healthy Buildings & Healthy Neighborhoods:

- ❑ American Society of Landscape Architects' (ASLA) [Universal Design Guidelines](#)
- ❑ Center for Active Design's (CfAD) [Assembly: Civic Design Guidelines](#)
- ❑ The City of New York's [Active Design Guidelines](#)
- ❑ Design Trust for Public Land's [High Performance Building Guidelines](#)
- ❑ National Association of City Transportation Officials' (NACTO) [Street Design Guide](#)
- ❑ Urban Land Institute's (ULI) [Building Healthy Places Toolkit](#)
- ❑ Urban Land Institute's (ULI) [Ten Principles for Building Healthy Places](#)
- ❑ Urban Land Institute's (ULI) [The Business Case for Healthy Buildings](#)

## Implementing Health-Promoting Building Design:

- ❑ Accessible Water Supply Requirements: [Americans with Disabilities Act \(ADA\) Guidelines](#) and [Ontarians with Disabilities Act \(ODA\) Regulations](#)
- ❑ Active Design Strategies for Stairwells: [US Centers for Disease Control & Prevention Guidelines](#)
- ❑ Adequate Pedestrian-Scale Lighting: [Crime Prevention Through Environmental Design \(CPTED\)](#) and [Illuminating Engineering Society](#)

## Sample Building Policies and Procedures:

- ❑ Fitwel's [Sample Commuter Survey](#)
- ❑ National Association of State Procurement Official's [Green Purchasing Policy](#)
- ❑ US Centers for Disease Control & Prevention's (CDC) [Handwashing Signs](#)
- ❑ US Centers for Disease Control & Prevention's (CDC) [Food Service Guidelines](#)
- ❑ US Environmental Protection Agency's (EPA) [Introduction to Air Quality \(IAQ\)](#)
- ❑ US Environmental Protection Agency's (EPA) [Introduction to Integrated Pest Management](#)

- 1 Terrapin Bright Green LLC. (2012). The Economics of Biophilia. Why Designing with Nature in Mind Makes Financial Sense. Retrieved from <https://www.terrapinbrightgreen.com/reports/the-economics-of-biophilia/#the-economic-advantages-of-biophilia-in-sectors-of-society>
- 2 Frank, L. D., Sallis, J. F., Saelens, B. E., Leary, L., Cain, K., Conway, T. L., & Hess, P. M. (2010). The development of a walkability index: application to the Neighborhood Quality of Life Study. *Br J Sports Med*, 44(13), 924-933.
- 3 Grossmeier, J., Fabius, R., Flynn, J. P., Noeldner, S. P., Fabius, D., Goetzel, R. Z., & Anderson, D. R. (2016). Linking Workplace Health Promotion Best Practices and Organizational Financial Performance. *Journal of Occupational and Environmental Medicine*, 58(1), 16-23.
- 4 Liu, J.H., & Shi, W. (2017). Impact of bike facilities on residential property values. *Transportation Record: Journal of the Transportation Research Board*, 2662(1), 50-58.
- 5 Christian, H., et al. (2017). A longitudinal analysis of the influence of the neighborhood environment on recreational walking within the neighborhood: results from RESIDE. *Environmental Health Perspectives*, 125(7).
- 6 Duncan, D. T., et al. (2011). Validation of walk score for estimating neighborhood walkability: an analysis of four US metropolitan areas. *International Journal of Environmental Research and Public Health*, 8(11), 4160-4179.
- 7 Largo-Wight, E., et al. (2011). Healthy workplaces: The effects of nature contact at work on employee stress and health. *Public Health Report*, 126 (Supplement 1), 124-30.
- 8 Lachapelle, U., et al. (2011). Commuting by public transit and physical activity: Where you live, where you work, and how you get there. *Journal of Physical Activity and Health*, 8(1), S72.
- 9 Aldred, R., & Jungnickel, K. (2013). Matter in or out of place? Bicycle parking strategies and their effects on people, practices and places. *Social & Cultural Geography*, 146, 604-624.
- 10 Peña-García, A., et al. (2015). Impact of public lighting on pedestrians' perception of safety and wellbeing. *Safety Science*, 78, 142-148.
- 11 Painter, K. (1996). The influence of street lighting improvements on crime, fear and pedestrian street use, after dark. *Landscape and Urban Planning*, 35(2-3), 193-201.
- 12 Aldred, R., & Jungnickel, K. (2013). Matter in or out of place? Bicycle parking strategies and their effects on people, practices and places.
- 13 The State of Obesity. (2016). Physical Inactivity in the United States. Retrieved from <https://stateofobesity.org/physical-inactivity/>.
- 14 Largo-Wight, E., et al. (2011). Healthy workplaces: The effects of nature contact at work on employee stress and health. *Public Health Report*, 126 (Supplement 1), 124-30.
- 15 Lottrup, L., et al. (2013). Workplace greenery and perceived level of stress: Benefits of access to a green outdoor environment at the workplace. *Landscape and Urban Planning*, 110, 5-11.
- 16 Zimring, C., Joseph, A., Nicoll, G. L., & Tsepas, S. (2005). Influences of building design and site design on physical activity: research and intervention opportunities. *Am J Prev Med*, 28(Suppl 2), 186-193.
- 17 Edwards, L. & Torcellini, P. (2002). A literature review of the effects of natural light on building occupants. National Renewable Energy Laboratory.



- 18 Velarde, M. D., et al. (2007). Health effects of viewing landscapes-Landscape types in environmental psychology. *Urban Forestry & Urban Greening*, 6(4), 199-212.
- 19 Tran, T.T., et al. (2015). Environmental tobacco smoke exposure and health disparities: 8-year longitudinal findings from a large cohort of Thai Adults. *BMC Public Health*, 15(1217).
- 20 Wellness Councils of America. (2006). Stairwell to Health: How the Centers for Disease Control and Prevention Rejuvenated Stairwells to Increase Physical Activity. Retrieved from [http://www.csun.edu/~alliance/Wellness\\_Coreteam/Absolute%20Advantage%20Magazine/Articles/stairwell\\_to\\_health21.pdf](http://www.csun.edu/~alliance/Wellness_Coreteam/Absolute%20Advantage%20Magazine/Articles/stairwell_to_health21.pdf)
- 21 Elzeyadi, I. M. K. P. (2011). Daylighting- Bias and Biophilia: Quantifying the Impact of Daylighting on Occupants Health. US Green Building Council. Retrieved from <http://www.usgbc.org/resources/daylighting-bias-and-biophilia>
- 22 Largo-Wight, E. (2011). Cultivating healthy places and communities: evidenced-based nature contact recommendations. *Int J Environ Health Res*, 21(1), 41-61.
- 23 Saito, H., et al. (2015). The staff break room as an oasis: Emotional labour, restorative environments and employee wellbeing in the hospitality industry. *CAUTHE 2015: Rising Tides and Sea Changes*, 694.
- 24 Kim, J., & Dear, R.D. (2013). Workspace satisfaction: The privacy-communication trade-off in open-plan offices. *Journal of Environmental Psychology*, 36, 18-26.
- 25 Mills, S. P. (2009). Workplace Lactation Programs. *Workplace Health & Safety*, 57(6), 227-231.
- 26 Soler, R. E., et al. (2010). Point-of-decision prompts to increase stair use. A systematic review update. *American Journal of Preventative Medicine*, 38(2 Suppl), S292-300.
- 27 An, R., & McCaffrey, J. (2016). Plain water consumption in relation to energy intake and diet quality among US adults, 2005-2012. *Journal of Human Nutrition and Dietetics*, 29(5), 624-632.
- 28 Sundstrom, E., et al. (1994) Office noise, satisfaction, and performance. *Environment and Behavior*, 26(2), 195-222.
- 29 Galasiu, A. D. & Veitch, J. A. (2006). Occupant preferences and satisfaction with the luminous environment and control systems in daylit offices: a literature review. *Energy and Buildings*, 38(7), 728-742.
- 30 Kwon, M., et al. (2019). Personal control and environmental user satisfaction in office buildings: Results of case studies in the Netherlands. *Building and Environment*, 149, 428-435.
- 31 French, S. A., et al. (2001). Pricing and promotion effects on low-fat vending snack purchases: the CHIPS Study. *American Journal of Public Health*, 91(1): 112-117.
- 32 Caffrey, S. L., et al. (2002). Public use of automated external defibrillators. *New England Journal of Medicine*, 347(16): 1242-1247.
- 33 MacNaughton, P., et al. (2015). Economic, environmental and health implications of enhanced ventilation in office buildings. *International Journal of Environmental Research and Public Health*, 12(11): 14709-22.
- 34 Meis, J., & Kashima, Y. (2017). Signage as a tool for behavioral change: Direct and indirect routes to understanding the meaning of a sign. *PLoS One*, 12(8): e0182975.
- 35 Soler, R. E., et al. (2010). Point-of-decision prompts to increase stair use. A systematic review update.
- 36 Judah, G., et al. (2009). Experimental pretesting of handwashing interventions in a natural setting. *American Journal of Public Health*, 99(Suppl 2), S405-11.
- 37 Meis, J., & Kashima, Y. (2017). Signage as a tool for behavioral change: Direct and indirect routes to understanding the meaning of a sign.
- 38 Memarovic, N., et al. (2012). Using public displays to stimulate passive engagement, active engagement, and discovery in public spaces. In *Proceedings of the 4th Media Architecture Biennale Conference: Participation* (pp. 55-64). ACM.
- 39 Garland, E., et al. (2018). Stand Up to Work: assessing the health impact of adjustable workstations. *International Journal of Workplace Health Management*, 11(2), 85-95.
- 40 Velarde, M. D., et al. (2007). Health effects of viewing landscapes-Landscape types in environmental psychology.
- 41 Roberts J.W., et al. (2004). A pilot study of the measurement and control of deep dust, surface dust, and lead in 10 old carpets using the 3-spot test while vacuuming. *Archives of Environmental Contamination and Toxicology*, 48(1): 16-23.
- 42 Story, M., et al. (2008). Creating healthy food and eating environments: policy and environmental approaches. *Annual Review of Public Health*, 29, 253-272.
- 43 Gorton, D., et al. (2010). Healthier vending machines in workplaces: both possible and effective. *New Zealand Medical Journal*, 123, 43-52.
- 44 Franke, D. L., et al. (1997). Cleaning for improved indoor air quality: An initial assessment of effectiveness. *Indoor Air*, 7(1), 41-54.
- 45 Ye, R., & Titheridge, H. (2017). Satisfaction with the commute: The role of travel mode choice, built environment and attitudes. *Transportation Research Part D: Transport and Environment*, 52, 535-547.
- 46 Christiansen, P., et al. (2017). Parking facilities and the built environment: Impacts on travel behaviour. *Transportation Research Part A: Policy and Practice*, 95, 198-206.
- 47 International Agency for Research on Cancer (2009). *Evaluating the Effectiveness of Smoke-free Policies*. IARC Handbooks of Cancer Prevention, World Health Organization, 13.
- 48 International Agency for Research on Cancer (2009). *Evaluating the Effectiveness of Smoke-free Policies*.
- 49 Pitarman, R., et al. (2017). Monitoring indoor air quality for enhanced occupational health. *Journal of Medical Systems*, 41(23).
- 50 Kaiser, B., et al. (2001). Solutions to health care waste: Life-cycle thinking and "green" purchasing. *Environmental Health Perspectives*, 109(3), 205-7.
- 51 Sundell, J., et al. (2011). Ventilation rates and health: multidisciplinary review of the scientific literature. *Indoor Air*, 21, 191-204.
- 52 Rashid, M. & Zimring, C. (2008). A review of the empirical literature on the relationships between indoor environment and stress in health care and office settings problems and prospects of sharing evidence, *Environment and Behavior*, 40(2), 151-190.
- 53 Schouten, R., et al. (2004). Community Response to Disaster: The Role of the Workplace. *Harvard Review of Psychiatry*, 12(4), 229-237.

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## About QuadReal

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Headquartered in Vancouver, Canada, QuadReal Property Group is a global real estate investment, operating and development company. The company seeks to deliver strong investment returns while creating sustainable environments that bring value to the people and communities it serves. Now and for generations to come. [www.quadreal.com](http://www.quadreal.com)

## About the Center for Active Design

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The Center for Active Design (CfAD) is the leading non-profit organization using design to foster healthy and engaged communities. CfAD's mission is to transform design and development practice to support health, ensuring equitable access to vibrant public and private spaces that promote optimal quality of life.

CfAD applies its multi-disciplinary expertise to empower decision makers, providing publications, original research, certification, technical assistance, and digital tools. Rather than imposing a one-size-fits-all model, CfAD collaborates with companies and communities to identify unique local priorities and determine measurable outcomes that can inform future investment and decision making.

CfAD also serves as the exclusive operator of Fitwel®, the premiere global health certification system for optimizing building design and operations. Learn more at [www.centerforactivedesign.org](http://www.centerforactivedesign.org) and [www.fitwel.org](http://www.fitwel.org).

