WELL v2™

DYNAMIC. RESILIENT. VALIDATED.

The next version of the
WELL Building Standard™

INTERNATIONAL
WELL
BUILDING
INSTITUTE™

INTRODUCTION

Dynamic. Resilient. Validated.

WELL v2 has graduated

The WELL Building Standard™ version 2 (WELL v2™) is a vehicle for buildings and organizations to deliver more thoughtful and intentional spaces that enhance human health and well-being. WELL v2 includes a set of strategies—backed by the latest scientific research—that aim to advance human health through design interventions and operational protocols and policies and foster a culture of health and wellness. Built upon the pioneering foundation of the first version of the WELL Building Standard (WELL v1), WELL v2 draws expertise from a diverse community of WELL users, practitioners, public health professionals and building scientists around the world.

HOW DID WE GET HERE?

The role buildings can play in human health and well-being has never been more evident or more important. Thanks to an evolving evidence base, we understand more about the relationship between the physical environment and human health than ever before. We know how to create spaces that enhance – rather than hinder – health and well-being. We can measure – and then improve – the quality of our air, water and light. We can design environments that fuel our bodies, move us, keep us connected, inspire our best work and facilitate a good night's sleep.

With WELL as our vehicle, IWBI helps to translate what we know into what we practice. We aspire to transform buildings and organizations in ways that advance health and well-being to help people thrive. This has been our mission since we launched WELL in 2014. And today, we know much more about how to achieve our goals. We've channeled all that we have learned into a more accessible, adaptable and equitable rating system, which continues to be anchored by the latest scientific research and industry best practices and serves as the foundation upon which the entire WELL ecosystem is built.

Since the launch of the WELL v2 pilot in 2018, we've worked tirelessly to incorporate feedback from thousands of members of our global community. During the two-year pilot phase, WELL v2 underwent improvement and refinement through a rigorous process, including a six-month public comment period and a final stakeholder review, garnering hundreds of market insights across the two phases. Throughout the pilot, we also published quarterly addenda to clarify and streamline implementation for projects around the world. In addition, the IWBI Task Force on COVID-19, comprised of 16 co-chairs and nearly 600 leaders and experts from 30 countries, collectively crowdsourced hundreds of comments during a 40-day sprint to assess how WELL v2 could be further strengthened to better support prevention and preparedness, resiliency and recovery.

The evolution of WELL v2 was supported by more than 150 WELL concept advisors. Concept advisors have expertise in one or more of the ten WELL concepts and provide input on solutions to health and wellness concerns, best practices for localization, case studies to fill research gaps and innovative topic areas. Their expertise and input supported IWBI's Standard Development team, comprised of experts in each of the ten WELL concepts, at every turn, and helped take WELL to new heights.

In 2020, IWBI formed our Governance Council comprised of key global thought leaders, doctors, public health professionals and business executives. The IWBI Governance Council is tasked with a dual purpose to uphold the integrity of the WELL Building Standard development process and accelerate market transformation at a global scale. The first task of the Governance Council was to vote to confirm that WELL v2 met defined best practices for standard development and that each WELL feature met four tenets:

1. **Evidence-based.** Each WELL feature is underscored by available evidence that links design, policy and built environment strategies to health and well-being outcomes. Features are substantiated by a diverse and rigorous evidence-base, including peer-reviewed literature; academic research; and leading design standards, laws, codes and best practices.
2. **Verifiable.** All WELL features are third-party verified by GBCI through documentation and/or performance testing.
3. **Implementable.** All WELL v2 features haves been tested through WELL v1 and/or WELL v2 pilot demonstrating adoption and uptake by projects across the world.

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4. **Presented for outside input.** At every step of the way, IWBI gathered feedback from a diverse community of practitioners, subject matter experts, users and other third parties to inform the development and evolution of WELL.

When put to the vote, in June 2020, the esteemed members of the IWBI Governance Council *unanimously* agreed that every single feature in WELL v2 meets the tenets outlined above. Following this rigorous review process leveraging internationally recognized standard development best practices, WELL v2 has demonstrated it is resilient, verified and dynamic.

PRINCIPLES OF WELL V2

This latest version of WELL has proven itself to be a scalable and globally applicable feature set that's responsive, inclusive and adaptable to fit any environment or organization seeking to elevate human health and promote wellness for all.

WELL v2 is founded on the following principles:

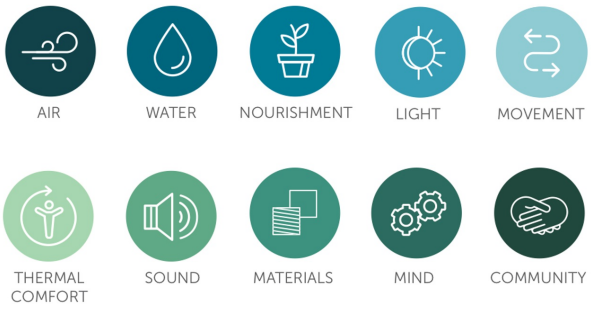
- **Equitable:** Aims to benefit a variety of people, including and especially disadvantaged or vulnerable populations.
- **Global:** Proposes interventions that are feasible, achievable and relevant across many applications throughout the world.
- **Evidence-based:** Draws upon a diverse and rigorous body of research across varying disciplines, validated by a collaborative body of experts, including IWBI advisors.
- **Technically robust:** Defines industry best practice and validates strategies through performance verification and a rigorous third-party verification process.
- **Customer-focused:** Sponsors the success of WELL users through dedicated coaching services, dynamic resources and an intuitive platform for navigating the journey.
- **Resilient:** Keeps pace with advances in research, science, technology and society, continuously improving by integrating new findings.

ARCHITECTURE OF THE RATING SYSTEM

WELL v2 consolidates previous iterations and pilots into a single rating system that is designed to accommodate all project types and sectors. The system is intended to grow in specificity and specialty over time, adapting to accommodate diverse project types and geographies and in response to new evidence and ever-evolving public health imperatives.

TEN CONCEPTS

There are ten concepts in WELL v2:



Each concept consists of features with distinct health intents. Features are either preconditions or optimizations.

UNIVERSAL PRECONDITIONS

Preconditions define the fundamental components of a WELL Certified space and serve as the foundation of a healthy building. WELL v2 offers a universal set of preconditions for all projects.

All preconditions – including all parts within them – are mandatory for certification.

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FLEXIBLE OPTIMIZATIONS WITH MEANINGFUL WEIGHTINGS

Optimizations are optional pathways for projects to meet certification requirements in WELL. Project teams may select which optimizations to pursue and which parts to focus on within each optimization.

WELL v2 operates on a points-based system, with 110 points available in each project scorecard. All optimizations are weighted with varying point values. The maximum point value of a feature is determined by the sum of its parts. A part is weighted by its potential for impact, defined as the extent to which a feature addresses a specific health and wellness concern or opportunity for health promotion, and the potential impact of the intervention.

Note: for some optimizations, achieving points in one part is contingent upon achieving points in another part.

DYNAMIC SCORECARD

The WELL digital platform guides project teams through the development of a unique scorecard. The digital platform recommends a selection of features based on project-specific parameters that can be further defined and refined by the project team.

PERFORMANCE VERIFIED FEATURES

WELL is a performance-based system. Every WELL project is verified through on-site testing of building performance. This practice is fundamental to high-performing buildings and helps project teams better understand the relationship between the physical environment and human health.

The process for on-site assessments and testing is called Performance Verification. On-site measurements are taken for various air and water quality parameters, as well as sound and light levels. It is a distinct process from traditional building commissioning and assures that the building performs as intended, according to WELL requirements.

Performance Verification is completed by an authorized WELL Performance Testing Agent, who usually spend one to three days in the building to validate the project's documentation and complete a series of performance tests, spot-checks and measurements covering all WELL concepts. Testing is completed according to IWBI's sampling protocols available in the WELL Performance Verification Guidebook.

PROJECT TYPES

WELL v2 projects fall into one of two main groups, determined primarily by ownership type:

- **Owner-occupied**: The project is mainly occupied by the project owner (which may be different than the building owner).
- **WELL Core**: The project owner occupies a small portion of the project area and rents/leases most of the space to one or more tenants.

OWNER-OCCUPIED PROJECTS

Owner-occupied projects are owned or leased by the project owner, and regular occupants (e.g., employees) are affiliated with the project owner. Owner-occupied projects are awarded WELL Certification at the Bronze, Silver, Gold or Platinum level (see Scoring and Certification Levels below).

Interiors represent a particular case of owner-occupied projects, where the project owner rents/leases space within a larger building (the "base building") that is less than half the size of the base building. Interiors projects operate like other owner-occupied projects, but in some cases, they can receive credit for amenities within the base building (see Project Boundary below). In other instances, interiors projects may be required to collaborate or work with the building owner or landlord to meet feature requirements that apply to building systems or spaces outside of the project owner's control, such as the HVAC system.

WELL CORE PROJECTS

WELL Core is a distinct pathway for core and shell buildings (also known as base buildings) seeking to implement fundamental features to benefit tenants. In these projects, the majority of regular occupants are not affiliated with the project owner. Any building type can register for WELL Core, provided that at least 75% of the project area is occupied by one or more tenants and/or serves as common space in the building accessible to all tenants. Note that offices affiliated with the project owner but unrelated to the management of the project property may be considered a tenant,

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as long as additional tenants unaffiliated with the project owner occupy at least 60% of the net leased area. WELL Core projects are awarded WELL Core Certification at the Bronze, Silver, Gold or Platinum level (see Scoring and Certification Levels, below)

Mixed-use buildings where WELL Core is appropriate for at least 60% of the project area may register the entire building for WELL Core. Areas operated/occupied by the project owner are considered "non-leased space" (see Scope and Applicability below). Non-leased spaces include the common areas of the building and private spaces directly under the control of the building management team. Mixed-use buildings where WELL Core is appropriate for less than 60% of the project area should register one or more portions of the building as individual projects for WELL Certification or WELL Core Certification, as appropriate.

FEATURE APPLICABILITY AND SCORING

Features have varying scopes of applicability for WELL Core projects, depending on the relevant population and project area. For example, some features, such as daylighting (L05) or bicycle storage (V04), must be met across the entire building. Other features apply only to spaces or personnel under the purview of the project owner, such as offering healthcare (C06) or childcare (C10) benefits.

Applicability designations are defined as follows:

- **Whole Building**: Includes all areas within the project boundary. Some features indicate that projects can achieve a feature by providing a tenant budget. To use this pathway, project teams need to submit as part of documentation review, design assumptions and sample cut-sheets (as applicable) that justify the budget and can be used by the tenant during their design and construction process.
- **Extent of Developer Buildout:** Includes all non-leased space and all construction within the leased space for which the project team is responsible.
- **Leased Spaces:** All areas within the project boundary that are leased to or owned by tenants, including areas for lease or for sale that are not currently occupied.
- **Non-leased Spaces:** All areas within the project boundary that are not considered leased space.
- **Building Management Staff:** Individuals responsible for maintaining and operating the building, including contractors and sub-contractors. Workers who spend less than 30 hours per month in the building (i.e., who are not regular occupants) are not considered building management staff.
- **Direct Staff:** Building staff under direct employment by the project owner. Note: If a project has no direct staff on-site (i.e., the building is entirely operated by contracted building management staff), the project is allowed to earn points by meeting feature requirements for all or a defined subset of building management staff. Projects must use a single consistent population across all features, including preconditions (e.g., a project with no direct staff may only earn a point for meeting an optimization for its building management staff, if it also meets all preconditions for that same group of people).

WELL Core projects have different point-values for parts and features than owner-occupied projects, based on the extent to which the requirements benefit all occupants within the project. Features that must be met for the whole building are generally worth more for WELL Core, while features with no or limited effect on tenants are generally reduced in value.

Some features allow WELL Core projects to earn points for applying the feature outside of the leased space and earn an *additional* point for achieving the requirements for their tenants. Further guidance on applicability and additional point-earning potential for WELL Core is provided in the digital standard. To view this guidance, be sure to select the "WELL Core" view in the digital standard.

PERFORMANCE TESTING SCOPE

For WELL Core projects, at least 2.5% of the total building floor area must be available for performance testing. The available testing area must include all common areas and spaces directly under the control of the building management team. If common areas and spaces under owner control comprise less than 2.5% of the total building floor area, the project must supplement with tenant spaces to reach this threshold. Testing in leased spaces in these cases can take place before or after tenant occupancy.

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Some performance-based optimizations explicitly state that they require testing in tenant spaces to be awarded. The project is responsible for identifying and communicating to Green Business Certification, Inc. (GBCI) and the WELL Performance Testing Agent the particular spaces which are available for testing.

MULTIFAMILY RESIDENTIAL PROJECTS

Multifamily residential projects may pursue WELL if they contain at least five dwelling units in a single building with common structural elements. Projects that qualify include apartments, condominiums, townhouses and other residential complexes within all market thresholds – affordable housing, market-rate and luxury.

Multifamily residential projects utilize the WELL Certification pathways (i.e., not WELL Core), even though most of the regular occupants are tenants, and the project owner may not complete the fit-out of the dwelling units.

Performance testing within dwelling units for precondition features is not required for multifamily residential projects seeking certification at the Bronze or Silver level. However, projects cannot achieve Gold or Platinum without testing conditions in a sample of dwelling units. See Features A01, W01, W02, L02 and T01 and the Sampling Rates for Multifamily Residential section of the WELL Performance Verification Guidebook for more details. For optimizations, testing within dwelling units is required, whether or not the project is targeting Gold or Platinum.

At recertification, for all levels of certification, testing is not required within dwelling units -- only in common areas and spaces dedicated to building management.

SCORING AND CERTIFICATION LEVELS

Projects must achieve all preconditions, as well as a certain number of points towards different levels of WELL Certification:

Total points achieved	WELL Certification		WELL Core Certification	
	Minimum points per concept	Level of certification	Minimum points per concept	Level of certification
40 pts	0	WELL Bronze	0	WELL Core Bronze
50 pts	1	WELL Silver	0	WELL Core Silver
60 pts	2	WELL Gold	0	WELL Core Gold
80 pts	3	WELL Platinum	0	WELL Core Platinum

Projects may pursue no more than 12 points per concept and no more than 100 points total across the ten concepts.

Projects can also pursue an additional ten points in the Innovation concept. A project may seek additional points in concepts where the project has already reached the 12-point maximum, by submitting features or parts not already pursued within those concepts as innovations for Feature I01. These submissions are worth one point per part, regardless of the listed point value of that part.

APPLYING WELL FEATURES

To accurately define the project scope and determine which features apply or may be appropriate for a project, it is important to understand how WELL features apply to different spaces and populations within a building.

PROJECT BOUNDARY

Defining the boundary of the project pursuing WELL certification, or the borders of the project brings further specificity to the project's scope. The project boundary must be consistently applied across all features. The project boundary may not unreasonably exclude portions of the building, space or site to give the project an advantage in complying with feature requirements. The project must accurately communicate the scope of the project in all promotional and descriptive materials and distinguish it from any space that falls outside of the project boundary. The project pursuing WELL certification should be defined by a clear boundary, such that the project is physically distinct from any portion of

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spaces not part of the project pursuing WELL certification.

The project boundary can include both interior and exterior spaces. Note that if the project boundary includes exterior (outdoor) spaces, this area is not counted when determining the project's area at registration (including for pricing purposes). For more guidance on how to calculate project size, download the WELL Certification Guidebook.

WELL features (unless otherwise noted in feature language) must be met within the project boundary, including (if applicable) exterior space. One of the pathways in Feature M09 Part 2 requires that projects provide an occupant-accessible outdoor space. For this space to count, it must be within the project boundary and, therefore, within the scope of other features that affect outdoor areas, such as pest management and pesticide use in Feature X10 (if pursued) and illuminance levels on pathways for Feature L02.

PROJECT BOUNDARY ALLOWANCES

Some features explicitly enable a space within a certain distance of the project boundary to be used towards feature requirements. Feature language specifies the distance allowed for each strategy. For example, Feature N08 requires a designated eating space within a 200 m [650 ft] walk distance of the project boundary. In these cases, the distance is measured along a pedestrian-accessible path from a functional building entrance (elevation change should not be considered in its calculation). If located outside of the project boundary, the space is not subject to the requirements of other features pursued by the project. These spaces may also be provided within the project boundary, in which case they are subject to other WELL requirements.

Certain features include a certification note for interiors projects that enable them to claim credit for amenities provided by their base building outside the project boundary. For example, an interior fit-out project may use the stairs which connect the entrance to the ground floor (if occupant-accessible) toward Feature V03. If a feature prescribes a certain quantity of amenities (such as the number of long-term bicycle parking spaces in Feature V04), an interiors project may take credit for the base building meeting this feature as long as these amenities are either reserved for the WELL project or sized for all occupants in the building.

SPACE TYPES

All parts of WELL v2 are designated for specific space types. Space types refer to spaces within a project and not the project as a whole. For example, a school might be made up of space types like classrooms, offices, a commercial kitchen and dining areas. Identifying space types within a project can help clarify how WELL features apply to that particular project.

Many parts in WELL features are denoted "For All spaces," an indication the part must be applied to all spaces within the project boundary, for all project types. Depending on the part, there may be distinct requirements for specific space types. These requirements are either required in addition to the requirements for all spaces or used in place of the requirements listed for all other spaces. For example, Feature N01 Part 1 has separate requirements for dining spaces and all other spaces, as indicated in the tab, "For All Spaces except Dining Spaces." Conversely, Feature N01 Part 2 has one set of requirements "For All Spaces" (including Dining Spaces) and additional requirements "For Dining Spaces" only.

SPACE TYPE OCCUPANCY

In addition to the classification of space types within a project, WELL v2 also distinguishes spaces based on their level of occupancy:

- **Regularly occupied space:** areas inside the project where a particular individual normally spends at least one continuous hour or, cumulatively, at least two hours per day, such as offices, conference rooms, bedrooms and classrooms.
- **Occupiable space:** spaces that can be occupied for any task or activity, including transition areas or balconies, but excluding spaces that are rarely accessed, such as storage spaces or equipment rooms.

Rooms larger than 930 m^2 [10,000 ft^2] may be divided into separate zones (at least 325 m^2 [3,500 ft^2] each), which may be evaluated for occupancy independently. For example, a large room may have one or more small areas (i.e., zones) within it, which are regularly occupied, while the remaining space is not. In this case, the project may identify and label these zones within their floor plan and apply features and performance testing requirements accordingly.

OCCUPANT TYPES

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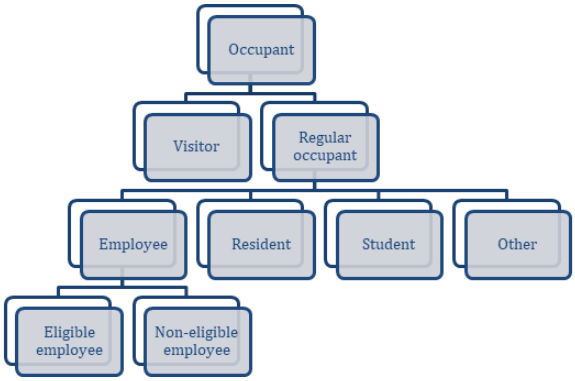
Determining or anticipating who will be present in each phase of a project helps create a complete picture of where and for whom the requirements of WELL features apply. WELL uses specific terminology to refer to groups of individuals that share characteristics. Project teams must employ a single, consistent definition of these terms across relevant features:

- **Occupant:** any individual within the project boundary.
- **Regular occupant:** an individual who spends at least 30 hours per month across at least five days within the project boundary (e.g., employee, resident, student).
- **Visitor:** any occupant who is not a regular occupant (e.g., shopper, museum-goer, hotel guest).
- **Employee:** an individual who works for the project owner within the project boundary.
- **Eligible employee:** an employee identified as qualifying for benefits. At a minimum, this includes all full-time employees but may also include part-time employees, interns, contracted workers and other non-full-time employees as appropriate.



For features that require size or quantity calculations to be performed based on a class of occupants listed in feature language, use the maximum number of occupants of that class to be expected at any given time.

CALCULATIONS

When making calculations for WELL features, do not apply rounding. Instead, use the most expansive interpretation of the result. For example, Feature V02 Part 1 requires adjustable height workstations for "at least 25% of all workstations." In a project with 21 workstations, the required number of workstations would be six, since five desks would only reach 23.8%.

MINIMUM SCOPE OF WELL FEATURES

Certain features require that a minimum scope is met – that is, the minimum level of achievement necessary to achieve a feature related to people, spaces and/or products.

NEWLY INSTALLED PRODUCTS

Some features, particularly in the Materials concept, require that products (such as cleaning products) with specific characteristics or qualities be used or installed in the project. More specifically, the requirements of some features apply to newly installed products -- that is, products installed after project registration.

Preconditions have no minimum scope, and a project without any relevant newly installed materials/products is considered in compliance. For example, Feature X01 restricts mercury in specific categories of newly installed lamps and electronics. If a project installs no lamps or electronics, they are considered in compliance with feature requirements.

For projects to qualify for optimizations that apply to newly installed products or materials, the quantity of products or materials which must comply with feature requirements is specified in the feature language. For example, Feature X05 requires that at least half of newly installed furniture, millwork and fixtures meet the enhanced material restrictions, and there must be at least 10 distinct products within the scope to qualify.

FOODS AND BEVERAGES

A particular category of products pertains to foods and beverages. Projects that do not sell or provide food daily by (or under contract with) the project owner, including catering, are considered in compliance with the Nourishment preconditions. A daily basis is defined as the majority of days in the project's operating week. This is assessed during each

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week of seasonal operation for projects that do not sell or provide food year-round.

Foods and beverages supplied by the project owner (or by a vendor under contract with the project owner) include but are not limited to items sold or provided in restaurants, cafeterias, cafes, vending machines and items available in kitchen pantry areas. They do not include anything brought into the project by occupants for personal consumption.

Features that apply to dining spaces require on-site food preparation and/or full-service dining. These projects typically include a commercial kitchen and food service staff. Foods prepared on-site include foods assembled on-site and foods prepared for immediate consumption. Projects without these facilities are not eligible to pursue these features.

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About the WELL Building Standard (WELL™)

Launched in October 2014 after six years of research and development, WELL is the premier Standard for buildings, interior spaces and communities seeking to implement, validate and measure interventions that support and advance human health and wellness.

WELL was developed by integrating scientific and medical research and literature on environmental health, behavioral factors, health outcomes and demographic risk factors that affect human health with leading practices in design, operations and management. WELL also references existing standards and best practice guidelines set by governmental and professional organizations.

About the International WELL Building Institute™ (IWBI™)

The International WELL Building Institute (IWBI) is leading the global movement to transform our buildings, organizations and communities in ways that help people thrive. IWBI delivers the cutting-edge WELL Building Standard, the first standard to be focused exclusively on the ways that buildings, and everything in them, can improve our comfort, drive better choices, and generally enhance, not compromise, our health and wellness.

IWBI's work extends to advancing health through design for entire neighborhoods through the WELL Community Standard, and convening and mobilizing the wellness community through management of the WELL AP credential.

WELL Certification and the WELL AP credentialing program are third-party administered through IWBI's collaboration with Green Business

Certification Inc. (GBCI), which also administers LEED certification, the global green building program, and the LEED professional credentialing program.

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AIR

The WELL Air concept aims to achieve high levels of indoor air quality across a building's lifetime through diverse strategies that include source elimination or reduction, active and passive building design and operation strategies and human behavior interventions.

The WELL Air concept aims to ensure high levels of indoor air quality across a building's lifetime through diverse strategies that include source elimination or reduction, active and passive building design and operation strategies and human behavior interventions.

People spend approximately 90% of their time in enclosed spaces[1] – in homes, offices, schools or other building environments. During this time, inhalation exposure to indoor air pollutants can lead to a variety of negative short- and long-term health and well-being outcomes that can vary in severity. Less severe symptoms of exposure can include headaches, dry throat, eye irritation or runny nose, while more severe health outcomes can include asthma attacks, infection with *Legionella* bacteria and carbon monoxide poisoning.[2–4] In the U.S. alone, indoor pollution contributes to thousands of cancer deaths and hundreds of thousands of respiratory health issues annually.[5] In addition to public health concerns, estimates by the U.S. EPA suggest that net avoidable costs associated with indoor air pollution amount to well over $100 billion annually with 45% of those costs attributable to avoidable deaths from radon and environmental tobacco smoke, about 45% from lost productivity and about 10% from avoidable respiratory diseases.[5]

The most common indoor air contaminants are combustion sources, such as candles, tobacco products, stoves, furnaces and fireplaces, that release pollutants, such as carbon monoxide, nitrogen dioxide and small particles into the air.[6] Building materials, furnishings, fabrics, cleaning products, personal care products and air fresheners can also all emit volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs) into the indoor environment.[7,8]

Achieving the goal of clean indoor air requires both professionals and building users to engage not just in the conversation but also in the implementation of adequate approaches. Although indoor air quality can be managed primarily through eliminating the sources of air pollution and through adequate design solutions and human behavior modification[5,9,10], some WELL features require installation of a specific treatment method or technology.

It is evident that the impact of improving indoor air quality is substantial[11]. In a recent global burden of disease study, household air pollution was rated as the tenth most important cause of ill health for the world's population.[12] Furthermore, The World Health Organization estimated that, globally, air pollution contributed to approximately seven million premature deaths in 2012.[13] Around 600,000 of those were children under 5 years old.[14] The WELL Air Concept seeks to implement holistic design strategies to promote clean air and minimize human exposure to harmful contaminants, in order to maximize benefits to productivity, well-being and health.

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A01 AIR QUALITY | P

Intent: Provide a basic level of indoor air quality that contributes to the health and well-being of building users.

Summary: This WELL feature requires projects to provide acceptable air quality levels, as determined by public health authorities.

Issue: Exposure to air pollutants, such as Volatile Organic Compounds (VOCs), ozone, particulate matter, carbon monoxide and others has been shown to increase the risk of respiratory and cardiovascular diseases, in addition to causing thousands of cancer deaths annually.[1] Inhaling pollutants presents symptoms including headaches, dry throat, eye irritation and runny nose that may later develop into extreme health outcomes, such as asthma attacks and cancer.[2–4] In addition, radon exposure is the second leading cause of lung cancer, after tobacco use.[5] Therefore, it is important to define indoor air quality levels that minimize risk to human health.

Solutions: The World Health Organization (WHO) and other regulatory bodies, such as the U.S. Environmental Protection Agency (EPA) identify a list of "criteria" air pollutants. They have established permissible levels for such criteria pollutants based on epidemiological studies that show the relationships between concentrations of these pollutants, duration of exposure and health risks. Achieving the goal of clean indoor air as defined by permissible levels, requires the joint efforts of both professionals and building users in the implementation of adequate approaches. Indoor air quality can be properly managed through different features listed in the WELL Air concept, including source control strategies, passive and active building design and operation strategies and human behavior interventions. Effective mechanical ventilation is particularly effective at bringing radon below acceptable thresholds.[6,7]

Part 1 Meet Thresholds for Particulate Matter

For All Spaces except Commercial Kitchen Spaces & Industrial:

Option 1: Acceptable thresholds

The following thresholds are met in occupiable spaces:

a. $PM_{2.5}$: 15 µg/m^3 or lower.[8]

b. PM_{10}: 50 µg/m^3 or lower.[9]

OR

Option 2: Modified thresholds in polluted regions

> **Note:** Projects pursuing this strategy are limited in WELL Certification level to Gold regardless of total points achieved.

For projects where the annual average outdoor $PM_{2.5}$ level is 35 µg/m^3 or higher, the following thresholds are met:

a. $PM_{2.5}$: 25 µg/m^3 or lower.[10]

b. PM_{10}: 50 µg/m^3 or lower.[10]

> **Note:** *The World Health Organization's Global Urban Ambient Air Pollution Database may be consulted to view outdoor air quality levels, available at http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/*

OR

Option 3: Dynamic thresholds in polluted regions

> **Note:** Projects pursuing this strategy are limited in WELL Certification level to Silver regardless of total points achieved.

For projects where the annual average outdoor $PM_{2.5}$ level is 35 µg/m^3 or higher, the following thresholds are met:

a. $PM_{2.5}$ less than or equal to 30% of the 24- or 48-hour average of outdoor levels on the day(s) of performance testing.

b. PM_{10} less than or equal to 30% of the 24- or 48-hour average of outdoor levels on the day(s) of performance testing.

> **Note:** *The World Health Organization's Global Urban Ambient Air Pollution Database may be consulted to view outdoor air quality levels, available at http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/*

For Commercial Kitchen Spaces & Industrial:

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Option 1: Acceptable thresholds

The following threshold is met:

a. $PM_{2.5}$: 35 µg/m^3 or lower.[8]

OR

Option 2: Dynamic thresholds in polluted regions

> **Note:** Projects pursuing this strategy are limited in WELL Certification level to Silver regardless of total points achieved.

For projects where the annual average ambient $PM_{2.5}$ level is 35 µg/m^3 or higher, the following thresholds are met:

a. $PM_{2.5}$ equal to 30% of the 24- or 48-hour average of outdoor levels on the day(s) of performance testing.

b. PM_{10} equal to 30% of the 24- or 48-hour average of outdoor levels on the day(s) of performance testing.

> **Note:** *The World Health Organization's Global Urban Ambient Air Pollution Database may be consulted to view outdoor air quality levels, available at http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/*

> **Note:** Multifamily residential projects may achieve WELL Certification at the Bronze or Silver level without testing in dwelling units, but cannot achieve Gold or Platinum without testing in dwelling units. See Sampling Rates for Multifamily Residential in the WELL Performance Verification Guidebook for further details.

> **WELL Core Guidance:**
> Meet these requirements in non-leased spaces provided, this areas comprises at least 2.5% of the total project area. Otherwise, meet these requirements in non-leased space plus sufficient leased space to sum to 2.5% of the total project area.

Part 2 Meet Thresholds for Organic Gases

For All Spaces:

Option 1: Laboratory-based VOC tests

The following thresholds are met in occupiable spaces:

a. Benzene (CAS 71-43-2): 10 µg/m^3 or lower.[11]

b. Formaldehyde (CAS 50-00-0): 50 µg/m^3 or lower.[12]

c. Toluene (CAS 108-88-3): 300 µg/m^3 or lower.[13]

OR

Option 2: VOC monitoring

The following requirements are met:

a. Sensors to measure total VOC at least once per hour (with accuracy 20 µg/m^3 + 20% of reading at values between 150 and 2000 µg/m^3) are installed with a density of at least one per every 3,500 ft^2(325 m^2).

b. Data covering at least the previous one month demonstrate total VOC levels of 500 µg/m^3 or lower for at least 90% of regularly occupied hours for all sensors.

> **Note:** Projects undergoing recertification which were previously awarded Feature A08 must consider all data collected since the previous (re)certification.

> **Note:** Multifamily residential projects may achieve WELL Certification at the Bronze or Silver level without testing in dwelling units, but cannot achieve Gold or Platinum without testing in dwelling units. See Sampling Rates for Multifamily Residential in the WELL Performance Verification Guidebook for further details.

> **WELL Core Guidance:**
> Meet these requirements in non-leased spaces provided, this areas comprises at least 2.5% of the total project area. Otherwise, meet these requirements in non-leased space plus sufficient leased space to sum to 2.5% of the total project area.

Part 3 Meet Thresholds for Inorganic Gases

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For All Spaces except Commercial Kitchen Spaces & Industrial:

The following thresholds are met in occupiable spaces:

a. Carbon monoxide: 10 mg/m^3 [9 ppm] or lower.[8]

b. Ozone: 100 $\mu g/m^3$ [51 ppb] or lower.[10]

For Commercial Kitchen Spaces & Industrial:

The following thresholds are met:

a. Carbon monoxide: 34 mg/m^3 [30 ppm] or lower.[14]

b. Ozone: 100 $\mu g/m^3$ [51 ppb] or lower.[10]

> **Note:** Multifamily residential projects may achieve WELL Certification at the Bronze or Silver level without testing in dwelling units, but cannot achieve Gold or Platinum without testing in dwelling units. See Sampling Rates for Multifamily Residential in the WELL Performance Verification Guidebook for further details.

> **WELL Core Guidance:**
> Meet these requirements in non-leased spaces provided, this areas comprises at least 2.5% of the total project area. Otherwise, meet these requirements in non-leased space plus sufficient leased space to sum to 2.5% of the total project area.

Part 4 Meet Thresholds for Radon

For All Spaces:

For regularly occupied spaces at or below grade, one of the following requirements is met:

a. The radon is 0.15 Bq/L [4 pCi/L] or lower, as tested by a professional demonstrated not to have a conflict of interest with the WELL project. One test is conducted per 25,000 ft^2(2300 m^2) of regularly occupied space at or below grade.

b. All regularly occupied spaces at or below grade meet Feature A03, Part 1, Option 1.

> **WELL Core Guidance:**
> Meet these requirements in non-leased spaces provided, this areas comprises at least 2.5% of the total project area. Otherwise, meet these requirements in non-leased space plus sufficient leased space to sum to 2.5% of the total project area.

Part 5 Monitor Air Parameters

For All Spaces except Dwelling Units:

The following requirements are met:

a. The pollutants listed in Parts 1-3 of this feature are monitored in regularly occupied spaces at intervals no longer than once per year, and the results are submitted annually through the WELL digital platform.

b. The number and location of sampling points for on-going monitoring complies with the requirements outlined in the Performance Verification Guidebook.

> **Note:** Projects are not required to use devices that comply with the requirements described in the Performance Verification Guidebook. Projects may monitor total VOCs, instead of the individual VOCs listed in Part 2: Meet Thresholds for Organic Gases. However, if measurements are undertaken by a WELL Performance Testing Agent in compliance with the Performance Verification Guidebook, results submitted to GBCI from each year and test location may be averaged and utilized for recertification purposes.

> **WELL Core Guidance:**
> Meet these requirements in non-leased spaces.

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A02 SMOKE-FREE ENVIRONMENT | P

Intent: Deter smoking, minimize occupant exposure to secondhand smoke and reduce smoke pollution.

Summary: This WELL feature requires projects to ban indoor smoking and ban or restrict outdoor smoking within its boundaries.

Issue: Exposure to tobacco smoke has continued to detrimentally affect the health of both smokers and those exposed to secondhand smoke. Ingredients in cigarettes form over 7,000 compounds when burned, of which at least 69 are known to be carcinogenic.[1] As a result, the average life expectancy of a smoker is 10 years less than that of a nonsmoker.[2] Furthermore, secondhand smoke exposes nonsmokers to the same contaminants, increasing the number of people subject to health risks from smoking. The thirdhand smoke (residual chemicals left on indoor surfaces by tobacco smoke) clings to walls, furniture, clothing, bedding, carpets and other surfaces, long after smoking has occurred. Emerging evidence suggests that there are serious health consequences associated with exposure to thirdhand tobacco smoke,[3] secondhand marijuana smoke and emissions from e-cigarettes.[4,5] Health issues associated with tobacco smoke include asthma attacks, respiratory infections, coronary heart disease, stroke, lung cancer and sudden infant death syndrome.[6] Despite these adverse impacts on health, 80% of the global population lives in countries not protected by 100% smoke-free regulations.[7]

Solutions: There is no safe and acceptable level of cigarette smoke exposure.[8] Therefore, the only way to protect people from secondhand and thirdhand smoke is to implement a 100% smoke-free environment.[8–10] In order to prevent intrusion of cigarette smoke from the outdoors, projects must also take steps to ensure that smoking is not allowed in the vicinity of building entrances, operable windows and building air intakes.[11]

Part 1 Prohibit Indoor Smoking

For All Spaces:

The following requirement is met:

a. Smoking and the use of e-cigarettes is prohibited in interior spaces within the project boundary.[12]

> **WELL Core Guidance:**
> Meet these requirements in the whole building.

Part 2 Prohibit Outdoor Smoking

For All Spaces:

Smoking and the use of e-cigarettes is prohibited in the following areas, with signage present to clearly communicate the ban:

a. Outdoors at ground level within 25 ft(7.5 m) (or the maximum extent allowable by local codes) of all entrances, operable windows and building air intakes.[13] Signage is present to clearly communicate the ban. In outdoor areas within the project boundary that allow smoking (if any), signs are placed along walkways (not more than 100 ft(30 m) between signs) that describe the hazards of smoking.[14]

b. On decks, patios, balconies, rooftops and other occupiable outdoor areas above ground level.

> **WELL Core Guidance:**
> Meet these requirements in the whole building.

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A03 VENTILATION DESIGN | P

Intent: Minimize indoor air quality issues through the provision of adequate ventilation.

Summary: This WELL feature requires projects to bring in fresh air from the outside through mechanical and/or natural means in order to dilute human- and product-generated air pollutants.

Issue: Poorly ventilated spaces contribute to symptoms, such as headache, fatigue, dizziness, nausea, cough, sneezing, shortness of breath and eye, nose, throat and skin irritation. This is collectively called sick building syndrome (SBS).[1,2] Poor ventilation is also linked to increased rates of employee absences, higher operational costs for businesses and decreased productivity in students.[3,4] One U.S.-based study reported that the sick leave attributable to insufficient provision of fresh air in buildings is estimated to be 35% of total absenteeism.[5] Therefore, the economic costs of SBS in under-ventilated buildings are significant and far exceed the energy-related cost savings.[6–8]

Solutions: Many indoor and outdoor sources of air pollution emit particulate matter and volatile organic compounds (VOCs) that can cause discomfort and trigger asthma and eye, nose and throat irritation. In order to maintain healthy indoor environments and acceptable air quality for building users, it is necessary to provide sufficient ventilation.[9,10] In addition to proper HVAC system design, mechanically ventilated projects need to perform regular system maintenance, since inadequate maintenance is associated with reduced ventilation performance and a deterioration in indoor air quality and thermal conditions.[11] For naturally ventilated spaces, it is necessary to ensure that adequate outdoor air quality and noise levels are met.

Part 1 Ensure Adequate Ventilation

For All Spaces:

Option 1: Mechanically ventilated spaces

For mechanically ventilated projects, one of the following requirements is met:

a. Newly installed ventilation systems are designed to meet the supply and exhaust rates set in one or more of the following ventilation guidelines, which must describe ventilation rates for at least 90% of the project area. The ventilation system is scheduled to be tested and balanced after project occupancy:

   1. ASHRAE 62.1-2010 or any more recent versions (Ventilation Rate Procedure or IAQ Procedure).[12]
   2. ASHRAE 62.2-2016.[13]
   3. EN 16798-1 (for Category IV buildings).[14]
   4. AS 1668.2-2012 or any more recent version.[15]
   5. CIBSE Guide A: Environmental Design, version 2007 or any more recent version.[16]

b. Existing ventilation systems have been tested and balanced to meet supply and exhaust rates set in one or more ventilation guidelines listed above within the last five years.

OR

Option 2: Naturally ventilated spaces

For naturally ventilated projects with no mechanical ventilation, the following requirements are met:

a. One or more of the following design criteria, which must describe ventilation rates for at least 90% of the project area:

   1. Natural Ventilation Procedure in ASHRAE 62.1-2010 or any more recent version.[12]
   2. CIBSE AM10: Natural Ventilation in Non-Domestic Buildings (2005 or any more recent version) Section 2.4 – Natural ventilation strategies and Chapter 4 – Design Calculations.[17]
   3. AS 1668.4-2012 or any more recent version.[15]
   4. Any reference in Option 1, which describes natural ventilation procedures.

b. Vents and windows used to meet the ventilation requirements in one of the standards mentioned above are permanently open or have controls to prevent their closure during periods of occupancy. (Operable windows not used in ventilation calculations may be user operated.)

c. Outdoor air meets the following thresholds as an average for the previous year:

   1. $PM_{2.5}$ less than 15 $\mu g/m^3$.[18]
   2. PM_{10} less than 30 $\mu g/m^3$.[18]

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OR

Option 3: Naturally ventilated spaces in areas with elevated particulate matter

Note: Projects pursuing this strategy are limited in WELL Certification level to Silver regardless of total points achieved.

For naturally ventilated projects with no mechanical ventilation, the following requirements are met:

a. One or more of the following design criteria, which must describe ventilation rates for at least 90% of the project area:
    1. Natural Ventilation Procedure in ASHRAE 62.1-2010 or any more recent version.[12]
    2. CIBSE AM10: Natural Ventilation in Non-Domestic Buildings (2005 or any more recent version) Section 2.4 – Natural ventilation strategies and Chapter 4 – Design Calculations.[17]
    3. AS 1668.4-2012 or any more recent version.[15]
    4. Any reference in Option 1, which describes natural ventilation procedures.
b. Vents and windows used to meet the ventilation requirements in one of the standards mentioned above are permanently open or have controls to prevent their closure during periods of occupancy. (Operable windows not used in ventilation calculations may be user operated.)
c. Outdoor air meets the following thresholds as an average for the previous year:
    1. $PM_{2.5}$ less than 35 µg/m^3.[18]
    2. PM_{10} less than 70 µg/m^3.[18]

Note:
Mixed mode projects must meet the requirements set for naturally ventilated spaces when mechanical system is not in use and the requirements for mechanical ventilation when the mechanical system is in use. The project must use mechanical ventilation when outdoor $PM_{2.5}$ levels are above 15 µg/m^3, based on a measuring device within 2.5 mi(4 km) of the project.

WELL Core Guidance:
Meet these requirements in the whole building. If the project uses mechanical or mixed mode ventilation, it must provide leased spaces with sufficient outdoor air but is not required to install ducts and diffusers within leased spaces.

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A04 CONSTRUCTION POLLUTION MANAGEMENT | P

Intent: Minimize the introduction of construction-related pollutants into indoor air, remediate construction-related indoor air contamination for human health and protect building products from degradation.

Summary: This WELL feature requires projects to protect indoor air quality during building construction and renovation through a combination of strategies, such as envelope protection, moisture and dust management, filter replacement, air flush and proper equipment selection.

Issue: Air pollution originating from construction and demolition works can impact the health and quality of life of people working and residing nearby and is associated with increased mortality, due to chronic obstructive pulmonary disease.[1] Increased emissions of PM_{10} in the vicinity of construction sites are positively correlated with people's suffering from respiratory diseases.[2] Building construction and renovations are primarily a source of coarse particulate matter, but they are also a source of airborne ultrafine particles.[3]

Solutions: The indoor air quality levels can be compromised during building construction. Care should be taken during construction to prevent dust intrusion and/or to clear the space of dust, chemical vapors and other debris to avoid significant aggravation of indoor air quality. Air duct protection, moisture and dust management, filter replacement and proper equipment selection are strategies that improve indoor air quality, by limiting the exposure to an intense contamination period.[4]

Part 1 Mitigate Construction Pollution

For All Spaces:

For construction occurring after project registration, the following requirements are met:

a. Ducts are maintained per one of the below:
    1. Ducts are sealed and protected from possible contamination during construction.[5]
    2. Ducts are cleaned prior to installing registers, grills and diffusers.
b. If permanently installed ventilation system is operating during construction, filters must meet the following:
    1. Media filters with a PM_{10} removal rating of at least 70% (e.g., MERV 8) are used to filter return air.[6]
    2. All filters are replaced prior to occupancy.[5]
c. The project implements the following moisture and dust management procedures:
    1. Carpets, acoustical ceiling panels, fabric wall coverings, insulation, upholstery and furnishings and other absorptive materials are stored separately in a designated area protected from moisture damage.[5]
    2. All active areas of work are isolated from other spaces by sealed doorways or windows or through the use of temporary barriers.[5]
    3. Walk-off mats are used at entryways to reduce the transfer of dirt and pollutants.[5]
    4. Saws and similar tools use dust guards or collectors to capture generated dust.[5]

> **WELL Core Guidance:** Meet these requirements for the extent of developer build out.

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A05 ENHANCED AIR QUALITY | O

WELL Certification: 4 Pt | WELL Core: 4 Pt

Intent: Encourage and recognize buildings with enhanced levels of indoor air quality that promote the health and well-being of people.

Summary: This WELL feature requires projects to go beyond current guidelines to provide enhanced air quality levels that have been linked to improved human health and performance.[1,2]

Issue: The quality of the air people breathe indoors directly impacts their health and well-being and constitutes one of the most important aspects of buildings that can support human health. Researchers have also identified a clear relationship between indoor air quality and human productivity in buildings.[3] An average of 10% of productivity loss could be attributable to health issues related to poor indoor air quality in office buildings.[4] There is also an emerging body of evidence that air pollution can disrupt physical and cognitive development in children.[5] Studies have also shown that air pollution contributes to the large global burden of respiratory and allergic diseases, as well as the premature deaths of adults and children.[6] The premature mortality rate could be reduced by up to 15%, if PM_{10} is reduced from 70 to 20 µg/m^3.[7] As a result, enhanced air quality is positively correlated with improved health, cognitive and physical development, higher incomes and better economic performance.[1,2]

Solutions: Indoor air quality can be properly managed primarily through source control strategies, passive and active building design and operation strategies and human behavior intervention. High levels of indoor air quality require both professionals and building users to collaborate in the implementation of adequate approaches.

Part 1 Meet Enhanced Thresholds for Particulate Matter

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

The following requirement is met:

a. Projects comply with the thresholds specified in the table below:

Particulate Matter Thresholds	Points
$PM_{2.5}$: 12 µg/m^3 or lower.[8] PM_{10}: 30 µg/m^3 or lower.[9]	1
$PM_{2.5}$: 10 µg/m^3 or lower.[9] PM_{10}: 20 µg/m^3 or lower.[9]	2

> **WELL Core Guidance:** Meet these requirements in the whole building. Achievement requires access to at least 10% of leased space for testing as identified by the project.

Part 2 Meet Enhanced Thresholds for Organic Gases

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

The following thresholds are met in occupiable spaces:

a. Acetaldehyde: 140 µg/m^3 or lower.[10]
b. Acrylonitrile: 5 µg/m^3 or lower.[10]
c. Benzene: 3 µg/m^3 or lower.[10]
d. Caprolactam: 2.2 µg/m^3 or lower.[10]
e. Formaldehyde: 9 µg/m^3 or lower.[10]
f. Naphthalene: 9 µg/m^3 or lower.[10]
g. Toluene: 300 µg/m^3 or lower.[10]

> **WELL Core Guidance:**

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> Meet these requirements in the whole building. Achievement requires access to at least 10% of leased space for testing as identified by the project.

Part 3 Meet Enhanced Thresholds for Inorganic Gases

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

The following thresholds are met:

a. Carbon monoxide: 7 mg/m^3 [6 ppm] or lower.[11]

b. Nitrogen dioxide: 40 µg/m^3 [21 ppb] or lower.[11]

> **WELL Core Guidance:**
> Meet these requirements in the whole building. Achievement requires access to at least 10% of leased space for testing as identified by the project.

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A06 ENHANCED VENTILATION DESIGN | O

WELL Certification: 3 Pt | WELL Core: 5 Pt

Intent: Expel internally generated pollutants and improve air quality in the breathing zone through an increased supply of outdoor air or increased ventilation efficiency.

Summary: This WELL feature requires implementation of advanced ventilation strategies that can achieve higher air quality levels and thus benefit human health and productivity.

Issue: The majority of ventilation standards specify ventilation rates and other measures intended to provide indoor air quality that is merely "acceptable" to building users and reduces the risk of adverse health effects.[1] Even with proper ventilation designed to meet ventilation standards, the concentration of indoor pollutants can exceed concentrations found in outdoor air.[2,3] Ventilation rates less than 21 cfm(10 L/s) per person in all building types are associated with negative perception of air quality and actual health outcomes.[4]

Solutions: Scientific research suggests that an airflow rate significantly exceeding that recommended by standards is needed to minimize sick building syndrome symptoms and to improve human performance and productivity.[5,6] Since it is difficult to test for every potential pollutant, and because carbon dioxide (CO_2) is easy to detect, CO_2 levels serve as a proxy for other indoor pollutants. A number of CO_2 studies suggest that the risk of sick building syndrome symptoms decreases significantly, when CO_2 concentrations are less than 800 ppm.[4] One method for decreasing the CO2 concentration experienced by occupants while minimizing additional energy use is demand-controlled ventilation, in which the delivery rate for outside air is directly linked to the measured CO2 levels within the space.[7] Displacement ventilation improves indoor air quality, by delivering fresh outdoor air at the floor level, leaving warmer polluted indoor air, such as CO_2 to be extracted above the height of the ventilation zone.[8]

Part 1 Increase Outdoor Air Supply

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces:

Option 1: Increased air supply

For mechanically ventilated projects, the following requirement is met in all occupiable spaces:

a. Exceed outdoor air supply rates described in ASHRAE 62.1-2010 by the percentages shown in the table below:

Thresholds	Points
30%	1(2)
60%	2(3)

OR

Option 2: Demand control ventilation

For mechanically ventilated projects, the following requirements are met in at least 90% of regularly occupied spaces:

a. A demand-controlled ventilation (DCV) system regulates the outdoor air ventilation rate to keep CO_2 levels less than the thresholds specified in the table below, at the maximum intended occupancy:

Threshold	Threshold	Points	
900 ppm	OR	500 ppm above outdoor levels	1(2)
750 ppm	OR	350 ppm above outdoor levels	2(3)

b. Carbon dioxide is measured at the return air diffusers or in the breathing zone at least 3.3 ft(1 m) away from doors, windows, air supply diffusers or occupants. At least one sensor is used for each occupancy zone (or per air handling unit, if a single zone is served by multiple air handling units). If the occupancy density/pattern/usage is substantially different in two adjacent areas, each area must be considered a separate zone.

OR

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Option 3: Enhanced natural ventilation

For naturally ventilated projects, the following requirement is met:

a. Implement an engineered natural ventilation system that is sufficient to keep CO_2 levels in the breathing zone of all regularly occupied spaces below the specified thresholds at the maximum intended occupancies:

Threshold	Threshold	Points	
900 ppm	OR	500 ppm above outdoor levels	1(2)
750 ppm	OR	350 ppm above outdoor levels	2(3)

Note: Mixed-mode projects must select the option corresponding to the ventilation mode (mechanical and natural ventilation) in operation for the majority of operating hours within the year.

WELL Core Guidance: Meet these requirement in the whole building. If the project pursues Option 1 or Option 2, it must provide leased spaces with sufficient outdoor air and a compatible control system (as applicable) but is not required to install ducts and diffusers within leased spaces.

Part 2 Improve Ventilation Effectiveness

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Displacement ventilation system

The project uses a displacement ventilation system in at least 90% of regularly occupied spaces, with one of the following as a basis for design:

a. ASHRAE Guidelines RP-949.[9]

b. ASHRAE 62.1-2019, "Stratified Air Distribution Systems (Section 6.2.1.2.1).[10]

c. REHVA Guidebook No. 01 (Displacement Ventilation in non-industrial premises).[11]

OR

Option 2: Personalized ventilation system

For at least 50% of workstations, the following requirements are met:

a. Outdoor air is supplied in the breathing zone, with an airspeed of no greater than 50 fpm(0.25 m/s) at the occupant's head.[10]

b. The return air diffusers are located more than 9.8 ft(2.8 m) above the floor.[10]

WELL Core Guidance: Meet these requirements in the whole building.

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A07 OPERABLE WINDOWS | O

WELL Certification: 2 Pt | WELL Core: 4 Pt

Intent: Increase the supply of high-quality outdoor air and promote a connection to the outdoor environment, by encouraging building users to open windows when outdoor air quality is acceptable.

Summary: This WELL feature requires buildings with operable windows to increase the supply of high-quality outdoor air and promote a connection to the outdoor environment, by encouraging building users to open windows when outdoor air quality is acceptable.

Issue: Inhalation of harmful indoor substances is correlated with adverse health outcomes, such as infectious diseases, cancer, asthma, allergies and other respiratory infections.[1,2] When outdoor air quality is favorable, opening windows can provide a supply of outdoor air and lower levels of indoor air contaminants. Achieving natural ventilation through open windows can provide a positive human experience.[3] However, it is challenging to the ability to maintain strict control over interior air quality. Despite often having conditions of temperature and ventilation below recommended standards, studies have shown that naturally ventilated buildings have fewer people reporting sick building syndrome symptoms than mechanically conditioned buildings.[4,5] In addition, studies have shown that there is a 7.7% productivity benefit associated with naturally ventilated spaces.[5,6]

Solutions: When weather and local outdoor parameters indicate high-quality outdoor air, people should be encouraged to make use of natural ventilation strategies. However, ventilating through windows generally introduces more outdoor pollution than mechanical systems with filters.[7] Human behavior is rated as one of the top three components affecting the generation and persistence of indoor air pollutants.[7] Educating and informing building users when outdoor conditions are favorable for window opening, can reduce the generation and persistence of indoor air pollutants.

Part 1 Provide Operable Windows

WELL Certification: 1 Pt | WELL Core: 2 Pt

> **Note:** Projects where the average outdoor $PM_{2.5}$ level is 35 µg/m^3 or higher may only achieve Part 1: Provide Operable Windows in conjunction with Part 2: Manage Window Use. The World Health Organization's Global Urban Ambient Air Pollution Database may be consulted to view outdoor air quality levels, available at http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/.

For All Spaces:

The following requirement is met:

a. Project meets one of the below:

    1. At least 75% of the regularly occupied spaces have operable windows that provide access to outdoor air.
    2. For each floor, the openable window area is at least 4% of the net occupiable floor area.

> **WELL Core Guidance:** Meet these requirements in the whole building. For area calculations, projects may use assumptions of regularly occupied spaces in leased spaces.

Part 2 Manage Window Use

WELL Certification: 1 Pt | WELL Core: 2 Pt

> **Note:**
> Projects may only achieve this part if Part 1 is also achieved.

For All Spaces:

Option 1: Outdoor air measurement

The following requirement is met:

a. Outdoor levels of $PM_{2.5}$, temperature and humidity are monitored at intervals of at least once per hour, based on a data-gathering station located within 2.5 mi(4 km) of the building. This monitoring system may be operated by the project or by another entity (e.g., a government).

Option 2: Window operation

Indicator lights at windows (at least one per room with windows) cue occupants when the conditions outside are

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suitable for opening windows:

a. $PM_{2.5}$: 15 µg/m^3 or lower.

b. Dry-bulb temperature: within 15 °F(8 °C) of indoor air temperature setpoint.

c. Relative Humidity: 65% or lower.

WELL Core Guidance: Meet these requirements in the whole building.

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A08 AIR QUALITY MONITORING AND AWARENESS | O

WELL Certification: 2 Pt | WELL Core: 1.5 Pt

Intent: Monitor indoor air quality issues, as well as inform and educate individuals on the quality of the indoor environment.

Summary: This WELL feature requires the ongoing measurement of contaminant data to educate and empower occupants about their environmental quality.

Issue: Types and concentrations of indoor pollutants continuously fluctuate in any indoor or outdoor environment. For example, cooking in the home can lead to a rapid spike in indoor air pollution.[1] Urban rush hours and waste-burning cause spikes in air pollution outdoors, which can directly impact indoor air quality. Some indoor air pollutants are recognized by their immediate impacts on our body, such as throat irritation or watery eyes.[2,3] However others that go undetected, are not necessarily benign. According to the U.S. Environmental Protection Agency, some health impacts like respiratory diseases, heart disease and cancer can appear years after exposure.[4]

Solutions: Due to air quality fluctuations, it is important to install air quality sensors and detectors in every building. Because air quality can fluctuate throughout the day in every building, real-time monitoring is necessary to promptly fix any deviations in indoor quality metrics and minimize occupant exposure to pollutants. In addition to having robust and calibrated sensors, positioning them correctly plays a crucial role in the accurate assessment of air quality.Furthermore, educating occupants about the risks associated with elevated air pollutant exposures, along with actions they can take to reduce these risks, can encourage personal agency to seek out opportunities to further curb indoor pollution levels.

Part 1 Install Indoor Air Monitors

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Sensor requirements

The following requirements are met:

a. The project deploys monitors that measure at least three of the following parameters:
    1. $PM_{2.5}$ or PM_{10} (accuracy 25% at 50 µg/m^3).
    2. Carbon dioxide (accuracy 10% at 750 ppm).
    3. Carbon monoxide (accuracy 1 ppm at values between 0 and 10 ppm).
    4. Ozone (accuracy 10 ppb at values between 0 and 100 ppb).
    5. Nitrogen dioxide (accuracy 20 ppb at values between 0 and 100 ppb).
    6. Total VOCs (accuracy 25% at 500 µg/m^3).
    7. Formaldehyde (accuracy 20 ppb at values between 0 and 100 ppb).
b. Monitors are sited at locations compliant with relevant parameters in the Performance Verification Guidebook. Monitor density is at least one sensor per 3500 ft^2(325 m^2).
c. Measurements are taken at intervals of no longer than 10 minutes for carbon dioxide and no longer than one hour for other pollutants.

Option 2: Reporting & maintenance

The following requirements are met:

a. Data are submitted annually through the WELL digital platform.
b. Monitors are recalibrated or replaced annually, and projects submit documentation attesting to their calibration or replacement annually through the WELL digital platform.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also measure environmental parameters in all leased spaces.

Part 2 Promote Air Quality Awareness

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

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Note: Projects may only receive points for this part, if Part 1 is also achieved

Information about the air quality measured in Part 1 of this feature is made available to occupants as follows:

a. Data are presented through one of the following:

    1. Display screens prominently positioned at a height of 3.6–5.6 ft(1.1–1.7 m) with at least one display per 3500 ft^2(325 m^2) of regularly occupied space.
    2. Hosted on a website or phone application accessible to occupants. Signs are present indicating where the data may be accessed at a density of at least one sign per 3500 ft^2(325 m^2) of regularly occupied space.

b. Data presented include one of the following:

    1. Concentrations of the parameters measured.
    2. Qualitative results of air quality (e.g., colored-coded levels).

WELL Core Guidance: Meet these requirements in non-leased spaces. Data displays must be placed in tenant-accessible areas or otherwise be made available to tenants.

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A09 POLLUTION INFILTRATION MANAGEMENT | O

WELL Certification: 2 Pt | WELL Core: 4 Pt

Intent: Minimize the introduction of pollutants into indoor air through the building envelope and at building entrances.

Summary: This WELL feature requires projects to reduce transmission of air and pollutants from outdoors to indoors through the building envelope and entrance.

Issue: Research shows that approximately 65% of outdoor air particle inhalation occurs while indoors.[1] Exposure to high levels of coarse and fine particulate matter inadvertently introduced into the space can lead to respiratory irritation. It has been associated with increases in lung cancer, cardiovascular disease and mortality.[2] Indoor air quality and thermal comfort can be compromised by leaks and gaps that break the building's air barrier. These weak points are not only wasteful from an energy point of view but can also lead to conditions conducive to mold growth and to the infiltration of pests or polluted air. In addition, building users can introduce particulate matter indoors through their clothes and shoes, including harmful coliforms and *Escherichia coli*, among other toxins.[3–5]

Solutions: In addition to building envelope commissioning, there is a need for measures that minimize or prevent the introduction of potentially harmful substances into indoor spaces. An example of such interventions is the installation of entryway walk-off systems and/or entryway air seals at all main building entrances.[6]

Part 1 Design Healthy Entryways

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Building entry design

The following requirements are met:

a. All regularly used entrances to the building that open to a pedestrian network include an entryway system composed of grilles, grates, slots or rollout mats or removable carpet tiles that are at least the width of the entrance and 10 ft(3 m) long in the primary direction of travel (sum of indoor and outdoor length).[7]

b. One of the below is in place to slow the movement of air from outdoors to indoors:

    1. Building entry vestibule with two typically closed doorways.
    2. Revolving entrance doors.

Option 2: Building entry maintenance

Building entryway systems are cleaned, as follows:

a. Wet-cleaned at least once a week, or as instructed by manufacturer.

b. Vacuumed at least once a day, or as instructed by manufacturer.

Option 3: Outdoor sport areas

The following requirement is met:

a. All facilities adjacent to an outdoor sports field have a staging area that separates the playing field from other internal areas to capture moisture and debris.[8]

> **WELL Core Guidance:**
> Meet these requirements in the whole building.

Part 2 Perform Envelope Commissioning

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

For projects undergoing design and construction, the following requirements are met:

a. The project uses a façade engineer that is responsible for defining the building envelope performance metrics (including materials, components, assemblies and systems) at the concept design stage.

b. The building envelope performance requirements are included in the Basis of Design document and reflect the Owner's Project Requirements.

c. The commissioning process includes envelope commissioning for air infiltration and leakage, which is reflected

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in the specification and commissioning plan.

d. The envelope commissioning process is executed, as outlined in the commissioning plan.

e. The envelope commissioning plan is included in the project Operation & Maintenance (O&M) Manual.

WELL Core Guidance:
Meet these requirements in the whole building.

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A10 COMBUSTION MINIMIZATION | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Reduce human exposure to combustion-related air pollution from heating and transportation sources.

Summary: This WELL feature requires projects to utilize low-emission combustion products or eliminate combustion-based products entirely.

Issue: Combustion-related emissions, mostly from space heating, cooking and nearby transportation, are often a major and overlooked source of indoor air pollution.[1] Inefficient heating practices, cooking or other combustion activities produce high levels of indoor air pollution that include a range of health-damaging pollutants, such as fine particles, nitrogen dioxide and carbon monoxide.[2] In addition to nausea, loss of consciousness and death[3], inhalation of elevated levels of carbon monoxide is linked to headaches, visual impairment, reduced cognitive functioning and the ability to perform complex tasks[4].

Solutions: Opting for non-combustion or low-emission combustion products is an important first step toward the reduction of carbon monoxide, nitrogen dioxide, small particles and other combustion by-products in the air.[5]

Part 1 Manage Combustion

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces except Commercial Kitchen Spaces:

Option 1: Appliance and heater combustion ban

The following requirement is met:

a. Combustion-based fireplaces, stoves, space heaters, ranges and ovens are not used in occupiable spaces.[6]

Option 2: Low-emission combustion sources

Equipment used in the project for heating, cooling, water heating, process heating or power generation (including back-up, if used for more than 200 hours per year) within the building or project site meet some combination of the following requirements:

a. Comply with California's South Coast Air Quality Management District emission rules for pollution.[7]

b. Are electric.

c. Are supplied by district heating or cooling.

Option 3: Engine exhaust reduction

The following requirement is met:

a. Vehicle engine idling for more than 30 seconds is prohibited in all pick-up, drop-off and parking areas at the building site controlled by the project. "No idling" signage is present at these locations indicating this rule.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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A11 SOURCE SEPARATION | O

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

Intent: Preserve indoor air quality and maximize olfactory comfort in occupied spaces through the isolation and proper ventilation of indoor pollution sources and chemical storage areas.

Summary: This WELL feature requires strategies that isolate key sources of odors, germs, pollution or humidity through doors or dedicated exhaust.

Issue: Air pollution can be created from many indoor sources, including cleaning products, office equipment and humid environments. Chemical storage closets that house cleaning products, can be a source of harmful vapors, including Volatile Organic Compounds (VOCs) that are linked to cancer, organ and central nervous system damage.[1,2] Copy rooms can contribute to the production of ozone, which has been associated with lung inflammation, chest pain, wheezing, coughing, shortness of breath and the exacerbation of respiratory illnesses, such as pneumonia and asthma.[3–5] Bathrooms can encourage the growth of mold and mildew, which have been associated with allergic reactions and aggravate lung diseases, such as asthma.[6] Exposure to air pollutants in kitchens, such as particulate matter, VOCs and polycyclic aromatic hydrocarbons, has been associated with kidney inflammation.[7]

Solutions: The most effective way to curb air pollution in buildings is to eliminate individual sources or capture emissions at the source, before they spread to surroundings.[8] For air pollution sources that are inevitable, physical separation of such sources combined with direct ventilation exhaust systems is an effective means of protecting individuals.

Part 1 Manage Pollution and Exhaust

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces except Dwelling Units:

For all bathrooms, kitchens, rooms for cleaning and chemical storage, rooms with high-volume printers and copiers and high-humidity areas, the following requirements are met:

a. Meet one of the following:
    1. Are separated from all adjacent regularly occupied spaces with self-closing doors and/or vestibules.
    2. Are negatively pressurized compared with adjacent regularly occupied spaces.
b. Utilize exhaust fans such that the return air is vented outdoors and not recirculated.[9,10]

For Commercial Kitchen Spaces:

The following requirements are met:

a. Canopy hoods have side or partial panels, when allowable by code.[11]
b. Type II hood overhangs and setbacks comply with ASHRAE 154-2011 (Table 3 - Minimum Overhang Requirements for Type II Hoods) on all open sides, measured in the horizontal plane from the inside edge of the hood to the edge of the top horizontal surface of the appliance.[12]
c. The vertical distance between the front lower lip of the hood and the cooking surface is less than or equal to 4 ft(1.2 m).[12]
d. Makeup air velocity near (or directed at) the hood is less than 75 fpm(0.38 m/s).[11]
e. Replacement air introduced directly into the exhaust hood cavity does not exceed 10% of the hood exhaust airflow rate.[13]
f. At least 50% of the air that replaces the exhaust air is conditioned transfer air, rather than makeup air.[14]
g. Appliances are grouped under exhaust hoods according to effluent production and associated ventilation requirements, as specified in ASHRAE 154-2011, per hood type (defined by the classifications used in ASHRAE 154-2011 for light, medium, heavy and extra-heavy appliance duty levels).[12]
h. Appliances have a rear seal between the appliance and the wall, when allowable by code.[15]
i. Appliances located at the end of a cook line requiring exhaust airflow rates greater than 300 cfm/ft(460 L/s/m) have a full side panel or an end wall.[12]

For Dwelling Units:

For all ovens, cooking burners and stove top cooking appliances that use a range hood, the following requirements

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are met:

a. Exhaust air is vented directly to the outdoors.[16]

b. Exhaust air outlets are separated from any air intakes by at least 10 ft(3 m), unless otherwise specified by local code.[17]

c. The minimum operating exhaust airflow rate is the greater of 100 cfm per linear foot(150 L/s per linear meter) of range hood width or 200 cfm(94 L/s).[18]

d. The range hood device, when in operation, covers at least 75% of the burner area.[19]

WELL Core Guidance: Meet these requirements in non-leased spaces.

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A12 AIR FILTRATION | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Reduce indoor and outdoor airborne contaminants through air filtration.

Summary: This WELL feature requires projects with mechanically ventilated spaces to implement adequate air filtration and document a maintenance protocol for installed filters. For naturally ventilated spaces, this feature requires that outdoor air quality standards are met.

Issue: Exposure to particulate matter (PM) is associated with many negative health outcomes. PM_{10} can block and inflame airways, causing a range of respiratory-related conditions that can lead to illness or death.[1] $PM_{2.5}$ poses even greater health risks compared to $PM_{10,}$ because it can penetrate deep into the lungs, enter the bloodstream and as a result, cause a variety of health issues, including heart disease and other cardiovascular complications.[1]

Solutions: Selection and installation of adequate media filters is one of the key mechanisms for minimizing exposure to outdoor and indoor air pollution. Studies have shown that decreased exposure to particulate matter by filtration of recirculated indoor air is associated with a reduced risk of cardiovascular disease and is an effective control measure for reducing allergic respiratory disease.[2,3] In addition, regular filter maintenance is critical to ensure proper air filtration and the efficiency of the air conditioning system. During the operation, filters should be replaced when they become loaded with particles, since they will begin to reduce airflow and increase pressure drop. Overloaded filters not only restrict airflow rate but can also result in a loss of filtration efficiency. It is also critical for projects to be aware whether the building is located in an area with elevated outdoor air pollution, since these projects often need to install a pre-filtration stage, in addition to the primary filtration, to maintain high-quality indoor air.[4]

Part 1 Implement Particle Filtration

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Filtration levels

The following requirement is met:

a. Media filters are used in the ventilation system to filter outdoor air supplied to the space, in accordance with thresholds specified in the table below:[5,6]

Annual Average Outdoor $PM_{2.5}$ Threshold	Minimum Air Filtration Level ($PM_{2.5}$ removal)
23 µg/m³ or less	≥80% (e.g., MERV 12 or M6)
24–39 µg/m³	≥90% (e.g., MERV 14 or F8)
40 µg/m³ or greater	≥95% (e.g., MERV 16 or E10)

Option 2: Filter maintenance

The following requirement is met:

a. Evidence that the filter has been replaced according to the manufacturer's recommendation is submitted annually through the WELL digital platform.

> **WELL Core Guidance:** Meet these requirements in the whole building. Up to 10% of the total area occupied by tenants can be excluded from the feature scope.

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A13 ENHANCED SUPPLY AIR | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Mitigate risks from indoor contamination and pollution sources, such as infectious disease particles and volatile organic compounds (VOC).

Summary: This WELL feature requires the projects to use supply air that is not recirculated or that is treated with carbon filters, media filters and/or Ultraviolet Germicidal Irradiation (UVGI).

Issue: Building materials, furnishings (e.g., carpets and furniture finishes), fabrics, cleaning products, personal care products, adhesives, solvents and air fresheners can all emit VOCs or semi-volatile organic compounds (SVOCs) into the indoor environment.[1,2] VOCs include benzene, formaldehyde and other chemical compounds, which at high concentrations can lead to the irritation of the nose and pharynx and have been associated with leukemia and Nasopharyngeal cancer.[3,4] Health effects can also include damage to the liver, kidneys and central nervous system.[5] Particles exhaled by infected individuals that contain air airborne diseases, such as COVID-19, can remain suspended several hours or longer and be recirculated through the ducts of the building.[6–8]

Solutions: The simplest way to avoid recirculating contaminated air is to not recirculate it. It involves supplying spaces with 100% outdoor air. Unfortunately, in certain climates this can involve a high energy cost, although this can be mitigated through the use of heat recovery systems.[9] The recirculated air could also be treated to remove contaminants. Carbon filters VOCs and ozone from the passing air[10,11]. HEPA or near-HEPA filters can help remove virus particles, since the virus often travels as part of a larger particle.[12,13] UVGI systems can also be effective, both when irradiating the upper portion of the room or in the air ducts, so long as they are powerful and/or the air speed is slow enough to provide a sufficient UV dose.[13,14] Finally, in-room air purifiers can be beneficial because the clean air is often provided within the breathing zone. However, their clean air output is often low, so they are best suited to smaller rooms.[7,13] For optimal performance, air filtration systems need to be maintained according to the manufacturer's instructions.

Part 1 Improve Supply Air

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Air supply requirements

All occupiable spaces utilize one of the following strategies:

a. 100% outdoor air (i.e., supply air has not recirculated from within the building).

b. Partially recirculated air which has been treated with the following:

   1. Activated carbon filter.
   2. At least one of the following: (i) Media filter with $PM_{2.5}$ removal of ≥90% (e.g., MERV 14 or F8), (ii) UVGI within the ducts to treat the moving air, or (iii) upper-room UVGI.

c. Partially recirculated air and include air purification/cleaning devices within the space (with a quantity appropriate to the room volume or area, based on manufacturer specification) that include the following:

   1. Activated carbon filter.
   2. Media filter with $PM_{2.5}$ removal of ≥90% (e.g., MERV 14 or F8) or UVGI.

Option 2: Filter maintenance

If filters or other air treatment is used, the following requirement is met:

a. Evidence that the filter or device has been replaced or maintained according to the manufacturer's recommendation is submitted annually through the WELL digital platform.

> **WELL Core Guidance:** Meet these requirements in the whole building. Up to 10% of the total area occupied by tenants can be excluded from the feature scope.

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A14 MICROBE AND MOLD CONTROL | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Reduce mold and bacteria growth within the building mechanical system.

Summary: This WELL feature requires projects to utilize UVGI systems and/or conduct regular inspections on components of the cooling system to reduce or eliminate growth of microbes and mold.

Issue: Mold will grow in places with an acceptable temperature range, a nutrient source and sufficient moisture.[1] Air conditioner systems, specifically cooling coils, have high levels of moisture condensation and serve as the perfect breeding grounds for mold.[2] Mold developed on cooling coils may shed particles into the building's indoor air and trigger asthma, headaches, allergies and other respiratory system disorders.[3–6] Exposure to mold has also been associated with hypersensitivity pneumonitis, allergic rhinitis, bronchitis, lung tumor development, eczema and toxic mold syndrome.[5,7]

Solutions: The growth of microorganisms and mold can be prevented and mitigated through a combination of regular mold inspections and placement of microbe inactivation techniques, such as Ultraviolet Germicidal Irradiation (UVGI) systems. Periodic inspections and maintenance of cooling systems are good preventative methods to reduce system failures that contribute to an increased potential for mold proliferation. Expenses associated with proper maintenance will often offset typical costs associated with mold remediation.[1] UVGI has been shown to dramatically reduce mold and bacteria growth on cooling coils and destroy microbial films that accumulate on their surfaces.[8] Studies have also associated the implementation of UVGI systems with a simultaneous reduction in viable microorganisms and respiratory disorders in the workplace.[9]

Part 1 Implement Ultraviolet Air Treatment

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: UV system design

The following requirements are met:

a. All central air handling units use ultraviolet lamps to irradiate the surfaces of the cooling coils and drain pans.[10]
b. All cooling coils and drain pans associated with fan coil units either:
    1. Are irradiated by ultraviolet lamps.
    2. May be opened for inspection for mold growth and cleaned, if necessary.

Option 2: UV system maintenance and inspection

The following requirements are met:

a. Evidence that the ultraviolet lamps have been replaced or maintained, according to manufacturer's recommendation is submitted annually through the WELL digital platform.
b. All cooling coils without ultraviolet lamps (if applicable) are inspected on a quarterly basis for mold growth and cleaned. If necessary, dated photos demonstrating adherence are submitted annually through the WELL digital platform.

> **WELL Core Guidance:** Meet these requirements in the whole building. Up to 10% of the total area occupied by tenants can be excluded from the feature scope.

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WATER

The WELL Water concept covers aspects of the quality, distribution and control of liquid water in a building. It includes features that address the availability and contaminant thresholds of drinking water, as well as features targeting the management of water to avoid damage to building materials and environmental conditions.

Nearly two-thirds of the human body is composed of water; it is a major component of cells and the dominant component of fluid between the cells.[1] Water is the medium for the transport of nutrients and waste throughout the body and helps to regulate the internal body temperature.[1] Depending on age, sex and pregnancy status, guidelines for water intake (including water in foods as well as direct consumption) recommend values between 49-125 oz(2 and 3.7L) daily water consumption by adults.[1,2] These amounts are appropriate to offset what leaves the body through respiration, perspiration and excretion, aiding in the removal of toxins, byproducts and other waste.[2] However, many people are inadequately hydrated, even where safe water is usually at the tap.[3-5] One contributing factor to this is the real or perceived quality of drinking water, as people who mistrust the safety of their water can be more likely to have lower intake of water and higher intake of sugar-sweetened beverages.[6]

Over the last hundred years, many parts of the world saw dramatic improvements in drinking water quality that triggered massive reductions in the prevalence of infectious diseases. The U.S. Centers for Disease Control and Prevention recognize this as one of the ten greatest public health achievements of the 20th century.[7] However, there has been increasing risk from industrial, agricultural and pharmaceutical sources. For example, water with high levels of nitrate can impair oxygen transport in infants and lead exposure can impair neurodevelopment in children.[8] Moreover, some of the chemicals used for disinfecting drinking water may combine with natural organic matter and generate byproducts sometimes correlated with reproductive disease and cancer such as trihalomethanes (THMs) and haloacetic acids (HAAs)[9]. Overall, due to widely varying water quality across the globe, it is important to identify which (if any) contaminants are of concern on the local scale.[8] Only then is it possible to design water treatment systems which address the necessary contaminants without adding undue complexity and wastewater.

In addition to providing hydration for building users, water plays a large role in other aspects of building design and operation. It is frequently used in heating and cooling systems, irrigation, pools and baths and general appliances. These instances are associated with various concerns for contamination, such as the need to control *Legionella* in cooling systems and hot tubs.[10] Additionally, if water from any source wets building materials that are not intended to come into contact with water, it sets up prime conditions for mold growth.[11] Careful building design that integrates responsive operations and allows for easy and meaningful means of inspection can mitigate the risks from water in these other aspects of buildings.

Universal access to good water, sanitation and hygiene are often grouped in public health approaches[12] yet are interdependent of each other. Provision of well-designed and equipped bathrooms for all, supporting appropriate hand washing, should reduce risks of acquiring enteric and respiratory diseases associated with poor hygiene practices.[12-14]

The WELL Water concept aims to increase the rate of adequate hydration in building users, reduce health risks due to contaminated water and excessive moisture within buildings and provide adequate sanitation through better infrastructure design and operations coupled with awareness and maintenance of water quality.

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W01 WATER QUALITY INDICATORS | P

Intent: Verify the quality of water for human contact through easy-to-test parameters.

Summary: This WELL feature requires the provision of water that meets thresholds for turbidity and coliforms for all water likely to come in contact with building occupants and verifies performance using on-site tests.

Issue: Most cities have an extensive treatment system to produce and deliver water with safety and integrity. Two parameters—total coliforms and turbidity— are commonly used to assess the effectiveness of these systems as easy-to-test measurements for the possible presence of other, more concerning contaminants, and are therefore known as 'indicators'. Coliform bacteria are naturally present in the environment and are generally considered harmless. However, some coliforms are associated with fecal contamination and may cause disease if ingested.[1] Turbidity is a measure of water cloudiness, which per-se does not constitute a health concern, however, it does relate to the availability of food and shelter for microbes, the presence of particulate contaminants and issues with the water treatment process,[1] along with posing an aesthetic concern. High turbidity water also can reduce the efficacy of water treatment technologies.[1]

Solutions: Water filtration can reduce turbidity and, depending on the type of device, may also trap bacteria and other contaminants. If the water has low turbidity, disinfection at the point of use with ultraviolet (UV) light may be effective at killing coliforms and pathogenic microbes.[2]

Part 1 Verify Water Quality Indicators

For All Spaces:

Water delivered to the project and intended for human contact (e.g., drinking, cooking and dishwashing, handwashing, showering or bathing) meets the following thresholds:

a. Turbidity is less than or equal to 1.0 NTU, FTU or FNU (nephelometric turbidity, formazin turbidity or formazin nephelometric units, respectively).

b. Coliforms are not detected in any 100 ml sample.

> **Note:** Multifamily residential projects may achieve WELL Certification at the Bronze or Silver level without testing in dwelling units, but cannot achieve Gold or Platinum without testing in dwelling units. See Sampling Rates for Multifamily Residential in the WELL Performance Verification Guidebook for further details.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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W02 DRINKING WATER QUALITY | P

Intent: Provide access to drinking water that complies with health-based limits on chemical composition.

Summary: This WELL feature requires projects to provide drinking water that meets thresholds on chemicals as published by research and regulatory organizations.

Issue: The chemical composition of drinking water, and therefore, its quality, changes from city to city and even within buildings due to the highly variable conditions of its sourcing, treatment and distribution within cities and inside buildings.[1] For example, natural deposits have caused arsenic to leach into some groundwaters to reach levels above drinking water health guidelines.[2] Water streams can also pick up contaminants from agricultural runoffs and direct industrial discharges,[3] whereas drinking water may encounter many opportunities to pick up contaminants in its travel from a treatment plant to the point of use, including corrosion byproducts such as lead and copper.[1] Disinfectants used to prevent microbial growth and render water potable, such as chlorine, may react with natural organic matter and yield unwanted disinfectant byproducts (DBPs) such as trihalomethanes (THMs) and haloacetic acids (HAAs), to which chronic exposure needs to be minimized.[4]

Solutions: Drinking water is treated and distributed to meet applicable legal requirements and regulations that may differ by country,[5] and many building-scale interventions can improve water quality depending on the contaminants that need to be removed. Typical technologies able to capture contaminants include activated carbon filters, ion exchange resins and reverse osmosis (RO) systems. Evaluating chemical parameters such as pH and free chlorine may inform of the potential for the uptake of corrosion byproducts and/or bacterial growth in drinking water.[1]

Part 1 Meet Chemical Thresholds

For All Spaces:

The following requirements are met:

a. The project provides at least one drinking water dispenser, plus one drinking water dispenser per dwelling unit.

b. All drinking water dispensers provide water that meets the following parameters:[1]

1. Arsenic ≤ 0.01 mg/L.
2. Cadmium ≤ 0.003 mg/L.
3. Chromium (total) ≤ 0.05 mg/L.
4. Copper ≤ 2 mg/L.
5. Fluoride ≤ 1.5 mg/L.
6. Lead ≤ 0.01 mg/L.
7. Mercury (total) ≤ 0.006 mg/L.
8. Nickel ≤ 0.07 mg/L.
9. Nitrate ≤ 50 mg/L as Nitrate (11 mg/L as Nitrogen).
10. Nitrite ≤ 3 mg/L as Nitrite (0.9 mg/L as Nitrogen).
11. Total chlorine ≤ 5 mg/L.

c. All drinking water dispensers provide water that meets the following parameters:

1. Residual (free) chlorine does not exceed 4 mg/L.[3]
2. The concentration of total trihalomethanes (TTHM, sum of dibromochloromethane, bromodichloromethane, chloroform and bromoform) is 0.08 mg/L or less.[3]
3. The concentration of haloacetic acids (HAA5, sum of chloroacetic, dichloroacetic, trichloroacetic, bromoacetic and dibromoacetic acids) is 0.06 mg/L or less.[3]

> **Note:** Multifamily residential projects may achieve WELL Certification at the Bronze or Silver level without testing in dwelling units, but cannot achieve Gold or Platinum without testing in dwelling units. See Sampling Rates for Multifamily Residential in the WELL Performance Verification Guidebook for further details.

> **WELL Core Guidance:** Meet these requirements in the whole building. Water will be sampled from non-leased spaces and the project must either:
>
> 1. Confirm that the same water treatment system (if applicable) will be used in all leased spaces.
> 2. Provide an allowance to tenants to purchase the same type of treatment system (if applicable) in leased spaces. If there is no water supply in non-leased spaces, water will be sampled from leased spaces.

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Part 2 Meet Thresholds for Organics and Pesticides

For All Spaces:

Option 1: Drinking water quality report

The following requirements are met:

a. A municipal water quality report issued not more than one year before project registration covers at least two of the pesticides below. All reported pesticides comply with the following thresholds:[1]

   1. Aldrin and Dieldrin (combined): 0.00003 mg/L or less.
   2. Atrazine: 0.1 mg/L or less.
   3. Carbofuran: 0.007 mg/L or less.
   4. Chlordane: 0.0002 mg/L or less.
   5. 2,4-Dichlorophenoxyacetic acid (2,4-D): 0.03 mg/L or less.
   6. Dichlorodiphenyltrichloroethane (DDT) and metabolites: 0.001 mg/L or less.
   7. Lindane: 0.002 mg/L or less.
   8. Pentachlorophenol (PCP): 0.009 mg/L or less.

b. A municipal water quality report issued not more than one year before project registration contains concentrations of at least three of the organic contaminants below. All reported organic contaminants comply with the following thresholds:[1]

   1. Benzene: 0.01 mg/L.
   2. Benzo[a]pyrene: 0.0007 mg/L.
   3. Carbon tetrachloride: 0.004 mg/L.
   4. 1,2-Dichloroethane: 0.03 mg/L.
   5. Tetrachloroethene (Tetrachloroethylene): 0.04 mg/L.
   6. Toluene: 0.7 mg/L.
   7. Trichloroethene: 0.02 mg/L.
   8. 2,4,6-Trichlorophenol: 0.2 mg/L.
   9. Vinyl Chloride: 0.0003 mg/L.
   10. Xylenes (o-, m- and p-): 0.5 mg/L.

OR

Option 2: On-site testing

The following requirements are met:

a. All drinking water dispensers provide water that meets thresholds for at least two pesticides and three organic contaminants listed under 'Drinking Water Quality Report'.

b. Water is tested by a professional demonstrated not to have a conflict of interest with the WELL project.

Note: Project selects pesticides and/or organic contaminants found above thresholds established under 'Drinking Water Quality Report' in any applicable municipal water quality report, if available.

WELL Core Guidance: Meet these requirements in the whole building. Water will be sampled from non-leased spaces and the project must either:

1. Confirm that the same water treatment system (if applicable) will be used in all leased spaces.
2. Provide an allowance to tenants to purchase the same type of treatment system (if applicable) in leased spaces. If there is no water supply in non-leased spaces, water will be sampled from leased spaces.

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1. Institute of Medicine. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. Washington, DC: The National Academies Press; 2005.
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W03 BASIC WATER MANAGEMENT | P

Intent: Implement protocols to reduce risk of water quality loss and *Legionella* colonization

Summary: This WELL feature requires projects to proactively test drinking water and to manage recirculating hot water systems against *Legionella* colonization.

Issue: All water systems require some degree of validation to ensure that the health targets are met under its operational conditions, for which sampling is an effective verification tool[1]. *Legionella* bacteria is naturally present in waters at low concentrations, but it may colonize recirculated water systems and can cause lung disease and even death if contaminated water aerosols are inhaled.[2] Legionnaire's disease affects especially the immunocompromised, smokers and those over age 50.[2] Assets commonly vulnerable to *Legionella* infestation include domestic potable and hot water systems, cooling towers, humidifiers, misters, decorative fountains, spas and hot tubs.[2]

Solutions: Basic management for water quality ensures that the water sourcing, treatment and delivery operates as designed. Turbidity, residual chlorine and pH monitoring help control basic chemical and microbiological water characteristics and, if trends are detected, may inform that actions may be needed to protect the quality of the water, such as changing a filter, check the building's pipes for leaks or inquire with the city for major works in the area. Management for minimizing *Legionella* requires a thorough and quantitative risk assessment of buildings' water assets, identifying locations where control is required, and a well-documented maintenance and operations program.[3] Implementing a proper *Legionella* management plan should reduce the risk of exposure to pathogenic bacteria.

Part 1 Monitor Chemical and Biological Water Quality

For All Spaces:

Option 1: Drinking water quality report

The following requirements are met:

a. The following water parameters are sampled at intervals of no less than once per year:
    1. Turbidity.
    2. pH.
    3. Residual (free) chlorine.
    4. Total coliforms, only if residual chlorine is below detection limits.
    5. Any other water parameter found at 80% or above its threshold listed in W02 Part 1, as stated in the Final WELL Report or in subsequent annual sampling. Testing occurs only at the locations where parameters were found to be at 80% or above its threshold and testing takes place at least annually until the sample is below 80% of the threshold.
b. The number and location of sampling points for on-going monitoring complies with the requirements outlined in the Performance Verification Guidebook.
c. The water quality results are submitted annually through the WELL digital platform.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 2 Implement Legionella Management Plan

For All Spaces:

Option 1: Legionella plan development

The project provides a *Legionella* management plan that meets the following requirements:

a. Addresses hot water systems, cooling towers, decorative fountains and any other devices or spaces under control of the project where water is recirculated and aerosolized.
b. Includes the items listed below:[3]
    1. Determination of roles for *Legionella* management in the building, distinguishing those under project control from those that may be the responsibility of building management or other parties.
    2. Water system inventory and process flow diagrams of systems within the project boundary.
    3. Hazard analysis of water assets within the project boundary. If the project does not operate the building hot

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water supply system (e.g., boilers, heaters, pumps or hot water risers), then an explanation of the building-wide Legionella management policies (if any) and how they influence risk is included.

4. A list of monitoring actions for relevant variables (e.g., temperature or residual chlorine), performance limits associated with these variables, and corrective actions when variables exceed such limits.
5. A list of critical control points (locations where actions to maintain relevant variables listed in (4) within performance limits are applied) within the project boundary.
6. Verification and validation procedures for evaluating the suitability and proper implementation of the management plan. A *Legionella* sampling schedule is included if projects have operational control over cooling towers and spas.
7. Protocols for documenting results of monitoring activities and corrective actions. If sampling for *Legionella* is planned, results are included.

Option 2: Legionella plan implementation

The following requirement is met:

a. Project submits annually through the WELL digital platform documentation of monitoring results, corrective actions and *Legionella* sample results (if any) as stated in the Legionella management plan.

WELL Core Guidance: Meet these requirements in the whole building.

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1. Institute of Medicine. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. Washington, DC: The National Academies Press; 2005.
2. European Food Safety Authority. Dietary Reference Values for nutrients Summary report. EFSA Supporting Publications. 2017;14(12):e15121E.
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W04 ENHANCED WATER QUALITY | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Provide access to drinking water without unpleasant taste, odor and appearance.

Summary: This WELL feature requires projects to provide drinking water that meets thresholds on chemicals that affect aesthetics and taste concerns.

Issue: Even when health-based thresholds for water quality are met, water may be found unappealing to drink because of taste, odor and appearance concerns. For example, high levels of chloride contribute to a salty taste and iron can give the water a reddish appearance.[1] Therefore, some regulatory bodies set non-enforceable limits based on human detectability and acceptability for these substances.[2,3]

Solutions: Like pollutants with health-based concerns, the treatment system to address nuisance chemicals depends on the contaminant of interest. Treatment options include filtration with carbon media and reverse osmosis.

Impact: By managing nuisance chemicals, projects can provide more appealing and palatable drinking water.

Part 1 Meet Thresholds for Drinking Water Taste

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Water delivered to the project for human consumption meets the following thresholds:

a. Aluminum ≤ 0.2 mg/L.[2]
b. Chloride ≤ 250 mg/L.[2]
c. Copper ≤ 1 mg/L.[2]
d. Manganese ≤ 0.05 mg/L.
e. Iron ≤ 0.3 mg/L.[2]
f. Silver≤ 0.1 mg/L.[2]
g. Sodium ≤ 270 mg/L.[3]
h. Sulfate ≤ 250 mg/L.[2]
i. Sulfide ≤ 0.05 mg/L.[3]
j. Zinc ≤5 mg/L.[2]
k. Total Dissolved Solids (TDS) ≤ 500 mg/L.[2]
l. Free Chlorine ≤ 1.25 mg/L.[4]

> **WELL Core Guidance:** Meet these requirements in the whole building. Water will be sampled from non-leased spaces and the project must either:
>
> 1. Confirm that the same water treatment system (if applicable) will be used in all leased spaces.
> 2. Provide an allowance to tenants to purchase the same type of treatment system (if applicable) in leased spaces. If there is no water supply in non-leased spaces, water will be sampled from leased spaces.

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1. Institute of Medicine. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. Washington, DC: The National Academies Press; 2005.
2. European Food Safety Authority. Dietary Reference Values for nutrients Summary report. EFSA Supporting Publications. 2017;14(12):e15121E.
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W05 DRINKING WATER QUALITY MANAGEMENT | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Maintain and display consistent high quality of drinking water.

Summary: This WELL feature requires pre-testing of water quality parameters to determine treatment needs, monitoring at a more frequent interval and disclosure of water results.

Issue: Providing potable water to buildings is a multi-stage process that involves sourcing of the water, potabilization in treatment plants, distribution through network of pipes and delivery to the tap. While steady delivery of potable water is a reality in many places, other places must regularly contend with water that is delivered below potability standards or with fluctuating quality due to the intrusion of contaminants in the water distribution pipes,[1] unsupervised changes in municipal water supply and treatment[2] or weather-related events.

Solutions: From a building perspective, sound water quality management begins with an understanding of the incoming water quality, preferably through testing and analysis of historical data. If needed, treatment devices, such as filters or UV disinfection units, can be used to achieve data-driven, health-based water quality targets.[3] Periodic water monitoring not only confirms the quality of the water, but also helps to determine the needs for maintenance in pipes, fixtures or treatment devices. Availability of water quality results and maintenance records to occupants may also increase drinking water consumption, furthering both cost-saving and sustainability efforts for the project, while also promoting occupant hydration.

Part 1 Assess and Maintain Drinking Water Quality

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Water quality pre-test

For first-time registered projects, the following requirements are met:

a. The project pre-tests water at least one month before Performance Verification for the parameters below:
    1. Turbidity.
    2. Coliforms.
    3. pH.
    4. Total Dissolved Solids (TDS).
    5. Total Chlorine.
    6. Residual (free) chlorine.
    7. Arsenic.
    8. Lead.
    9. Copper.
    10. Nitrate
    11. Benzene.
b. Sampling occurs at the following locations (with filters or other water treatment devices removed, if present):
    1. The water dispenser that is closest to the pipe that delivers water into the project.
    2. For projects with more than two floors, a drinking water dispenser on the highest floor and the drinking water dispenser located farthest from the location in requirement b(1) above to which the project has access.
    3. For projects of 12 or more floors, one additional drinking water dispenser for every 10 floors.

> **Note:** Projects under re-certification do not need to pre-test water in order to achieve this Part.

Option 2: Water quality monitoring

The following requirements are met:

a. Piped water is delivered to drinking water dispensers.
b. Water is tested quarterly in drinking water dispensers and meets the following thresholds. If any sample exceeds these thresholds, remediation and re-testing occur within a month:

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1. Turbidity is 1.0 NTU, FTU or FNU or less.
2. pH is between 6.5 and 9.0 (between 5.5 and 9 if a reverse osmosis system is installed at the point of use).
3. Total Dissolved Solids (TDS) are 500 mg/L or less.
4. Total Chlorine is 5 mg/L or less.
5. Residual (free) Chlorine is 5 mg/L or less.
6. Total Coliforms are not detected in a 100 ml sample. Testing is required only if residual chlorine is not detected.
7. Lead is 10 µg/L or less. Sampling frequency can be reduced to once per year if results are below detection limits in two consecutive samples.
8. Copper is 2 mg/L or less. Sampling frequency can be reduced to twice a year if results are below 0.1 mg/L in two consecutive samples; testing is no longer required if four consecutive samples are below this threshold.

c. The number and location of sampling points for on-going monitoring complies with the requirements outlined in the Performance Verification Guidebook.

d. All test results are submitted annually through the WELL digital platform.

WELL Core Guidance: Meet these requirements in the whole building. Project may sample water from non-leased spaces and either:

1. Confirm that the same water treatment system (if applicable) will be used in leased spaces
2. Provide an allowance to tenants to purchase the same type of treatment system (if applicable) in leased spaces. If the non-leased spaces have no water supplies, project must sample water from leased area.

Part 2 Promote Drinking Water Transparency

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

The following information is prominently displayed near sources of drinking water (or on a website available to occupants):

a. Water quality results from the most recent sampling, including date of testing and compliance with WELL thresholds.

b. If filters or other treatment units are in use, information about the treatment technologies and most recent date of device maintenance and/or filter cartridge replacement.

WELL Core Guidance:
Meet these requirements in non-leased spaces. Data displays must be placed in tenant-accessible areas or otherwise be made available to tenants.Meet these requirements in non-leased spaces. Data displays must be placed in tenant-accessible areas or otherwise be made available to tenants.

References

1. Institute of Medicine. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. Washington, DC: The National Academies Press; 2005.
2. European Food Safety Authority. Dietary Reference Values for nutrients Summary report. EFSA Supporting Publications. 2017;14(12):e15121E.
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W06 DRINKING WATER PROMOTION | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: Promote proper hydration through the consumption of drinking water over less healthy alternatives by promoting access to drinking water of verified quality.

Summary: This WELL feature requires readily available and maintained dispensers for drinking water.

Issue: People in many parts of the world do not hydrate enough to meet health guidelines, even in places where drinking water is available at the tap such as the U.S., Europe and Australia.[1-3] Conversely, increased amounts of water consumption has been connected with better diet quality.[2,4] Despite being relatively cheap and being shown to attenuate socioeconomic disparities in hydration,[5] the public's negative perceptions about the quality of tap water has catalyzed the adoption of bottled water. While plastic bottled water allows for portable hydration, excess waste produced by the dumping and degradation of single-use bottles and the generation of microplastics is a serious environmental concern. Pollution produced by single use plastic products is a rising public health issue that requires a comprehensive toxicological assessment in order to understand its full impact.[6]

Solutions: The first step toward increasing consumption of good quality water is to make it easily available and removing barriers to accessibility. When the addition of drinking fountains is combined with information sessions, consumption of plain water has been found to increase.[7] Finally, it is important to keep water dispensers in a state of good repair to encourage continued water consumption.[8] Using drinking water fixtures also allows fresh water to run through pipes, preventing losses in water quality.[9]

Part 1 Ensure Drinking Water Access

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces except Dwelling Units:

Option 1: Dispenser availability

The following requirements are met:

a. At least one drinking water dispenser (minimum one per floor) is located within a100 ft(30 m) walk distance of all regularly occupied floor area and in all dining areas.

b. Water delivered by the dispensers is directly piped through the building's water supply or is stored in containers designed for refilling.

c. All newly installed drinking water fountains are designed for water bottle-refilling.

Option 2: Dispenser maintenance

All drinking water dispensers meet the following requirement:

a. The mouthpieces/outlets, protective guards, aerators (if present), basins and touch points are cleaned on a daily basis.

> **WELL Core Guidance:** Meet these requirements in the whole building. For each 900 m^2 [10,000 ft^2] of leased spaces, projects may provide one water supply and drainage point that can be connected to a drinking water dispenser.

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1. Institute of Medicine. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. Washington, DC: The National Academies Press; 2005.
2. European Food Safety Authority. Dietary Reference Values for nutrients Summary report. EFSA Supporting Publications. 2017;14(12):e15121E.
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W07 MOISTURE MANAGEMENT | O

WELL Certification: 3 Pt | WELL Core: 6 Pt

Intent: Limit the potential for bacteria and mold growth within buildings from water infiltration, condensation and internal leaks.

Summary: This WELL feature requires projects to develop strategies to minimize the presence of unintentional water and, when unavoidable, to manage it through material selection and inspections.

Issue: Excess moisture and dampness is a common problem in buildings, affecting about 20% of buildings in Europe, Canada and the U.S.[1] When improperly managed, moisture creates conditions conducive to the growth of mold and other biological pests, which can increase the risk of developing respiratory infections and asthma for those within the building.[1] It is estimated that one fifth of asthma cases in the U.S. are caused by excess moisture and dampness in buildings.[2] Furthermore, moisture can damage the building itself by creating an environment hospitable to insects and other destructive pests, corroding metal components and degrading wood and porous building materials.[3] These problems can arise when water unintentionally penetrates the building envelope or leaks from indoor uses of water, or when moisture-heavy air condenses on building materials.

Solutions: Through effective design of the building's curtain wall, water piping assemblies and ventilation systems, and by selecting appropriate materials where condensation may occur, projects can make conditions inhospitable to mold, microbes and pests, reducing the risk to respiratory health.[3,4] Inspections are needed to both verify that design and operations properly safeguards against mold growth, as well as inform the need for preventative maintenance.[4]

Part 1 Design Envelope for Moisture Protection

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

The building envelope aims to minimize moisture intrusion and accumulation through the following:[3]

a. For a project where construction occurs after registration, verification of site drainage and storm water management during building construction phase.

b. Air tightness testing to assess water vapor transfer.

c. Adverse vapor pressure differentials that may cause condensation on interstitially hidden materials.

d. Entryway design that considers at least three strategies to minimize the ingress or permeation of water into the building.

e. Installation of a continuous drainage plane (e.g., a weather-resistant barrier integrated with flashing systems at penetrations), interior to the exterior cladding.

f. Minimization of capillary suction (wicking) in porous building materials through one of the below capillary break methods:

    1. Free-draining spaces (e.g., between exterior cladding, weather-resistant barriers in wall assemblies).
    2. Non-porous materials (e.g., closed-cell foams, waterproofing membranes, metal) between porous materials.

> **WELL Core Guidance:** Meet these requirements in the whole building.

Part 2 Design Interiors for Moisture Management

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Condensation and liquid water management

The project implements measures to manage moisture in interior spaces that address, at a minimum, the following:[3]

a. Protection of moisture-sensitive building materials and selection of moisture-resistant materials or finishes in surfaces likely to be exposed to liquid water (e.g., finished floors) or that may absorb moisture such as interior sheathing in basements, areas at or below grade, bathrooms, janitorial rooms or kitchens.

b. Condensation on cold surfaces such as basements, slab-on-grade floors, the inside of exterior walls and glazing.

Option 2: Water leak control in fixtures

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The following requirements are met:

a. All hard-piped fixtures, such as toilets, dishwashers, icemakers, water treatment devices and clothes washers, have a labeled, readily accessible single-throw manual shut-off (governed or activated per use) or automatic shut-off at point-of-connection.

b. All installed water treatment devices have a waste line fixed in-place, equipped with a backflow preventor.

> **WELL Core Guidance:** Meet these requirements in the whole building. Feature requirements may be communicated within tenant lease agreements.

Part 3 Implement Mold and Moisture Management Plan

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Operational moisture management

The project implements a moisture management plan for building operations that contains the following:

a. A schedule of periodic inspections for signs and potential sources of water damage or pooling, discoloration and mold on ceilings, walls, floors and HVAC equipment.[3]

b. A system or inspection protocol to periodically assess water pipe leaks.

c. A system for occupants and tenants to notify building management about mold or water damage.

Option 2: Leaks and mold inspections

The following requirement is met:

a. Results of inspections for mold and leaks (including any mold test results) are submitted annually through the WELL digital platform.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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W08 HYGIENE SUPPORT | O

WELL Certification: 4 Pt | WELL Core: 4 Pt

Intent: Ensure availability of bathrooms and support hygienic hand washing and toilet use practices for all individuals.

Summary: This WELL feature requires projects to provide bathrooms that accommodate users with diverse needs and to improve hygiene by offering large sinks, soap containers, hand drying support and reduced touch points.

Issue: All humans share the critical need to access bathrooms. Proper hand hygiene is key to reducing the incidence of gastrointestinal and respiratory diseases after bathroom use.[1] Access to bathrooms can be challenging for some.[2–4] For example, women often lack necessary bathroom accommodations due to an insufficient quantity and lack of sanitary materials.[2,4] Caregivers, small children, older adults or other individuals who require assistance frequently lack access to facilities that support their needs.[2] Despite hand washing, hands can only become as clean as the surrounding environment. Sinks may harbor pathogenic bacteria that can migrate onto hands during washing.[5] Water splashing from the drain may spread bacteria to surrounding areas.[6-9] Additionally, soap and the inside of liquid soap containers often remain contaminated after use; thus, best practice and research recommends that soap dispensers not be topped off.[7,8] Lastly, once an individual's hands are cleaned, they can more easily become re-infected when wet compared to when dry.[5,10]

Solutions: Bathrooms can be designed and furnished to ease hygiene, particularly for menstruating women (e.g., by supplying female hygiene products)[2,4] and for supporting caregivers of children[11] and individuals with physical and mental disabilities.[2] Trash receptacles, baby changing stations, large sinks, fragrance-free soap, hand dryers and fixtures that minimize unnecessary contact with the hands can be provided. Single-user facilities with gender neutral signage provide safe, comfortable bathroom availability for individuals of all gender identities.[12] Visual cues that promote hand hygiene may improve compliance with established guidelines in certain segments of the population.[13-15]

Part 1 Provide Bathroom and Handwashing Accommodations

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces except Dwelling Units:

Option 1: Bathroom Accommodations

The following requirements are met:

a. All bathrooms meet the following requirements:
    1. Provide trash receptacles in stalls (in women's and single-user bathrooms). If toilet paper cannot be flushed down toilets, trash receptacles must be placed in all bathroom stalls.
    2. Provide sanitary pads, tampons and/or other menstrual products at no cost or subsidized by at least 50% (in women's and single-user bathrooms).
    3. Provide a hook, shelf or equivalent storage support in each toilet stall.
b. All occupants have access to at least one bathroom per floor that provides an accessible stall.
c. All occupants have access to at least one bathroom per floor that provides an infant changing table.
d. All regular occupants may request a syringe drop box at no cost, which the project places in one or more bathrooms based on occupant demand.[16]
e. All single-user bathrooms (if present) are open to all individuals with accompanying signage and at minimum one single-user bathroom per floor (if present) meets the room and stall dimensions required by local accessibility code.
f. Floor drains are equipped with a self-primed liquid-seal trap.[17]

Option 2: Family bathrooms

For projects where the majority of occupants are visitors (e.g., shopping malls, airports, museums), family bathrooms are provided that meet the following requirements:

a. Accommodate expected demand by individuals in need of accompaniment or assistance in the bathroom (e.g., children, individuals with mental or physical disabilities).[18]
b. Contain the following accommodations:
    1. Changing table for infants.
    2. Children's toilet facilities or accommodations for child use of adult size toilet.

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3. Children's sinks or accommodations for child use of adult size sink (e.g., availability of stepstool).
4. Motion sensor lights.
5. Skid resistant floors.
6. Safety grab bars.
7. At least one designated location for bags (e.g., hook, shelf separate from changing table and sink).

Option 3: Handwashing support

The project provides, at minimum, the following in all sinks where handwashing is expected (e.g., bathrooms, break rooms and wellness rooms):

a. Fragrance-free liquid hand soap dispensed through one of the following:
    1. Sealed dispensers equipped with disposable soap cartridges.
    2. Dispensers with detachable and closed containers for soap refill. Soap containers must be washed and disinfected when emptied, before refilling.
b. One of the following methods for hand drying:
    1. Paper towels.
    2. Hand dryers equipped with a HEPA filter. Filter replacement and equipment maintenance are carried out per manufacturer's instructions. This method is not available for healthcare projects.
    3. Fabric hand towel rolls with dispensers, with rolls replaced before reaching their end of service.
c. Signage displaying steps for proper hand washing.

For Commercial Kitchen Spaces & Commercial Dining Spaces:

Option 1: Provide Handwashing Signage in Commercial Kitchens

The following requirement is met:

a. Clear signage directing toward the nearest handwashing location is present at the entrance to all areas intended for food preparation and consumption.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 2 Enhance Bathroom Accommodations

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces except Dwelling Units:

All bathrooms meet the following:

a. Toilets are equipped with hands-free flushing.
b. Contactless soap dispensers and hand drying.
c. Users can exit the bathroom hands-free.
d. Faucets meet the following:
    1. Sensor-activated.
    2. Equipped with a programmable line-purge system.
    3. If mixing is used, hot- and cold-water lines are mixed at the point of use.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 3 Support Effective Handwashing

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

All sinks where handwashing is expected (e.g., kitchens, bathrooms, break rooms and wellness rooms), meet the following requirements:

a. The faucet design prevents the water column from flowing directly into the drain or a sink drain stopper is installed.[6,19]
b. Water does not splash outside the sink when the faucet is fully open.

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c. Newly installed sinks meet the following design parameters:

    1. The sink basin is at least 9 inches(23 cm) in width and length.
    2. The water column from the sink to the basin is at least 6 inches(15 cm) in length (measured along flow of water, even if at an angle).
    3. The water column is at least 3 inches(7.5 cm) away from any edge of the sink.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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W09 **B** ONSITE NON-POTABLE WATER REUSE | O

WELL Certification: 2 Pt | WELL Core: 2 Pt

Intent: Conserve water through non-potable water systems without compromising the health of the building occupants.

Summary:
Efficient water management is an ever-growing need for supporting and sustaining human existence. The rise of extreme droughts and subsequent long-term water scarcity are requiring changes in how humans think about and use water. Conversely, severe rain events can overload wastewater treatment plants with storm- and rainwater, potentially resulting in combined sewer overflows (CSOs), in which untreated water is released to natural bodies of water and beaches downstream.

Buildings can reduce the pressure on city-wide water infrastructure by supporting efficient allocation of resources, such as minimizing the use of municipally sourced water for applications that do not require potability (e.g., irrigation, flushing toilets). However, without proper design and operations management, there is a risk of contamination of potable water lines or oral or respiratory exposure to non-potable water.

Issue:
The design and operations of a healthy, non-potable water system must address the water sources and uses. For instance, water coming from clothes washers and showers, as well as stormwater collected at the street level, requires treatment and water quality monitoring before reuse. The system should be designed so that water capture and reuse does not create niches of water stagnation, and storage tanks for non-potable water need periodic checks and safeguards against overflows. Additionally, pipes destined to distribute non-potable water must not be commingled with those for drinking water, and proper control measures must be in place if potable water supplements non-potable water applications (e.g., toilet flushing). Finally, smells and odors need to be managed to avoid the perception of a health threat, as this may hinder efforts to improve water management and conservation in a building.

While there are many factors to consider, these challenges can be managed through a properly implemented safety plan that addresses health endpoints in the collection, treatment and distribution of non-potable water within the building. The success in the implementation of this plan also depends on third party verification, in which the plan is evaluated with respect to the achievement of its health endpoints. Additionally, education and signage are essential in supporting occupants' understanding of the positive impact of sensible water utilization within buildings and of the measures taken to protect human health.

Solutions: By properly managing and controlling non-potable water reuse and capture systems, projects can help maintain occupant health and safety, while contributing to decreased water use by up to 75% in new buildings.

Part 1 Implement Safety Plan for Non-Potable Water Capture and Reuse

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

The following requirements are met:

a. The project implements a safety plan that contains the following:
    1. A list of key team roles for design, operations, maintenance and third-party inspection of the non-potable water system capture, treatment and use.
    2. A list of all applicable codes and regulations in the jurisdiction where the non-potable water reuse system is being installed and that govern the design, commissioning, and approval of operation of the system.
    3. A process flow diagram that displays the non-potable water sources, conveyances, storage units, treatment devices and points of use, emphasizing the points where makeup potable water (i.e., water needed to supplement non-potable needs) may be added.
    4. A description of the system that includes the sources and estimated contaminant loads of the non-potable water, the intended uses for the non-potable water, the water treatment devices (if any) and their certifications, and the water quality parameters expected at the points of use.
    5. An analysis of how human exposure to pathogens through ingestion and inhalation of non-potable water is minimized, including (if applicable) a description of how the potable water network is protected from the introduction of non-potable water, emphasizing strategies that address cross-connection control and backflow prevention.
    6. A description of the signage and identifiable pipe color-coding to distinguish the non-potable water

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network.

7. A list of strategies for the control of odors, nuisances and vectors due to stagnation of non-potable water.
8. A narrative that details provisions for emergency operations caused by overflow of storage tanks, leaks and outages.
9. A list of operational parameters (such as flow, turbidity, coliforms or other treatment-dependent indicators) to monitor the intended functioning of the water system, their monitoring frequency and control actions if such parameters are beyond target ranges.
10. A list of control points where the operational parameters are being measured.
11. A list of routine maintenance protocols and schedules.
12. A description of the procedures for system startup, determination of protocols for verification of the safety plan, including Legionella testing if a risk of inhalation exists, and schedule for third-party inspections.

b. Projects submit annually through the WELL digital platform documentation of the startup procedure, maintenance logs, results from verification tests (when applicable) and of third-party inspections.

c. Projects provide visual evidence of conspicuous signage to occupants to help them to clearly distinguish potable from non-potable water (where applicable) as well as informative displays to highlight the safety features and conservation goals of the non-potable water system.

Note:
Projects are not required to provide information on the individuals assigned to perform the key roles determined in the safety plan.

All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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NOURISHMENT

The WELL Nourishment concept requires the availability of fruits and vegetables and nutritional transparency. It encourages the creation of food environments, where the healthiest choice is the easiest choice.

Healthy diets have the potential to nurture human health and prevent several diet-related diseases, including cardiovascular disease, high blood pressure and diabetes. However, poor nutrition remains a top contributor to the global burden of disease, accounting for more than one in every five deaths globally.[1] In fact, unhealthy diets pose a greater risk to morbidity and mortality than drug, alcohol and tobacco use combined.[1] The global population is currently facing a double burden of disease, in which much of the population is malnourished and suffering from micronutrient deficiencies, as well as an increasing prevalence of overweight, obesity and non-communicable diseases. Diets around the world are generally low in fruits, vegetables, whole grains, nuts and seeds,[2] and are characterized by increasing intakes of highly processed foods, including refined sugars and refined oils, as well as the growing consumption of meat.[3] Fortunately, individual dietary choices have the potential to shift global dietary patterns toward healthier diets, providing major health benefits and preventing diet-related diseases.

Diets inextricably link human health and environmental health and sustainability. The current global transition towards unhealthy and unsustainably produced food is threatening global food systems as food production remains one the largest contributors to global environmental change.[4] In 2019, the EAT-Lancet Commission developed, for the first time, global scientific targets for a healthy reference diet based on the best available evidence for healthy diets and sustainable food production.[5] This healthy reference diet can be adapted to all food cultures and is characterized by a variety of vegetables, fruits, whole grains, legumes, nuts and seeds, and small amounts of animal source foods, highly processed foods, refined grains and added sugars.[5] Given the strong connection between food production and food availability and consumption, global achievement of healthy diets from sustainable food systems requires a global food transformation.[5]

Our dietary patterns are influenced by a complex mixture of personal, cultural and environmental factors, including the buildings and communities where we spend the majority of our time and consume the majority of our meals. The way our food environments are designed and operated, as well as the availability and access to foods and beverages in these environments, has the potential to support healthy diets and improve human health with the health of the planet in mind. In fact, research shows that individual change is more likely to occur when environmental conditions and influences are aligned to support individual behaviors.[6,7] Therefore, improving diet quality and eating behaviors requires a holistic approach, which includes both supportive policies and environmental change.[8,9]

The WELL Nourishment concept supports healthy and sustainable eating patterns by increasing access to fruits and vegetables, limiting the availability of highly processed foods and designing environments that nudge individuals toward healthier choices.

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N01 FRUITS AND VEGETABLES | P

Intent: Promote the consumption of fruits and vegetables by increasing the availability and accessibility of fruits and vegetables.

Summary: This WELL feature requires the provision and promotion of fruits and vegetables, if food is sold or provided on a daily basis.

Issue: Fruits and vegetables are a key component of a healthy dietary pattern for the prevention of chronic disease.[1] However, most individuals around the world do not meet the daily recommended five servings (400 g).[1] Insufficient fruit and vegetable intake is attributed to 5.2 million deaths worldwide in 2013, as well as 14% of gastrointestinal cancer deaths, 11% of ischemic heart disease deaths and 9% of stroke deaths globally.[2] Greater consumption of fruits and vegetables is associated with a reduced risk of cardiovascular disease, obesity, type 2 diabetes, stroke and certain types of cancers, as well as improved weight management.[1,3–5] Eating a variety of fruits and vegetables also helps to ensure adequate nutrient, micronutrient and dietary fiber intake.[6]

Solutions: Increasing the availability and access of fruits and vegetables can support fruit and vegetable consumption. Increased availability of fresh fruit at worksites has been shown to improve fruit and vegetable consumption at work and at home, indicating that individuals take these healthier habits home.[7] Strategies to increase fruit and vegetable consumption include behavioral interventions, such as increased availability and visibility of fruits and vegetables, pricing incentives to lower the cost of fruits and vegetables and promotion and support of community gardens and urban agriculture initiatives.[8]

Part 1 Provide Fruits and Vegetables

For All Spaces except Commercial Dining Spaces:

If foods are sold or provided on a daily basis by (or under contract with) the project owner, each food outlet meets one of the following requirements:

a. The selection includes at least two varieties of fruits (containing no added sugar) and at least two varieties of non-fried vegetables.[9]

b. At least 50% of available food options are fruits (containing no added sugar) and/or non-fried vegetables.

For Commercial Dining Spaces:

One of the following requirements is met:

a. The selection includes at least four varieties of fruits (containing no added sugar) and at least four varieties of non-fried vegetables.[10]

b. At least 50% of available food options are fruits (containing no added sugar) and/or non-fried vegetables.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 2 Promote Fruit and Vegetable Visibility

For All Spaces:

Option 1: Fruit and vegetable promotion

If foods are sold or provided on a daily basis by (or under contract with) the project owner, fruits and vegetables meet one of the following requirements:

a. Placed at eye-level or just below eye-level.[9,11,12]

b. Displayed on the countertop, table or other visible surface.[13]

c. Placed at point-of-sale or point-of-purchase.[9,11,12]

d. Placed at the end of aisles.[9,11,12]

e. Placed at the beginning of food service lines.[9,11,12]

f. Visible from the food outlet entrance.[14]

For Commercial Dining Spaces:

Option 1: Healthy menu design

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If foods are sold or provided on a daily basis by (or under contract with) the project owner, fruits and vegetables are presented on menus and menu boards, including digital menus, according to at least three of the following promotion strategies:

a. Included as default options throughout the menu.[11]

b. Listed using appealing descriptions.[15,16]

c. Visually highlighted through icons, different colors or bolding.[17]

d. Listed first in each menu section.[17]

e. Listed in prominent areas of the menu (e.g., the top, bottom, corners).[17]

WELL Core Guidance: Meet these requirements in non-leased spaces.

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N02 NUTRITIONAL TRANSPARENCY | P

Intent: Help individuals make informed food choices through nutritional labeling and allergy information.

Summary: This WELL feature requires the provision of detailed nutritional information, calorie labeling for standard menu items and sugar content labeling for all foods and beverages sold or provided on a daily basis.

Issue:
Nutrition information panels and nutrition fact labels are often found on packaged foods and beverages. These provide consumers with useful nutrient, ingredient and food allergen information that can be used to guide food choices and daily intake. However, the same level of nutritional transparency does not exist for foods and beverages in restaurants, vending machines and a variety of food retail establishments. Nutritional transparency is especially important for the millions of individuals with food allergies and food intolerances, who must navigate many issues when dining away from home. Moreover, evidence suggests that health warnings can help increase health knowledge and the purchase and consumption of certain products.[1]

Solutions: Although evidence is inconsistent as to whether calorie labeling reduces calories purchased or calories consumed, the increased transparency has led to the introduction of lower-calorie items in restaurants and other food establishments.[2–4] Research also suggests that calorie labeling and similar health labeling interventions may serve as important sources of nutritional information for consumers, resulting in healthier food choices and increased calorie information awareness.[5–7] Since there is no cure for food allergies, avoidance of food allergens is a recommended strategy for preventing serious allergic reactions, such as anaphylaxis. Food service professionals play a critical role in helping consumers navigate food choices and making all spaces safer and more inclusive of individuals with food allergies and intolerances. Food allergy training helps ensure that all food service staff are properly trained to address potential food allergens and intolerances.

Part 1 Provide Nutritional Information

For All Spaces:

If packaged foods and beverages, including items in vending machines and self-service bulk foods, are sold or provided on a daily basis by (or under contract with) the project owner, the following nutrition information is clearly displayed at point-of-decision on packaging or adjacent signage:

a. Total calories per serving or package.

b. Macronutrient content (total protein, total fat and total carbohydrate) in weight and/or as a percent of the estimated daily requirements (daily values) per serving or package.

c. Total sugar content per serving or package.

For Commercial Dining Spaces:

For standard menu items sold or provided by (or under contract with) the project owner, the following requirements are met:

a. The number of calories contained in each standard menu item, as usually prepared and offered for sale, is clearly displayed on menus and menu boards.

b. The macronutrient content (total protein, total fat and total carbohydrate) and total sugar content of each standard menu item is available upon request.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 2 Address Food Allergens

For Commercial Dining Spaces:

Option 1: Food allergy training

If food is prepared on-site on a daily basis by (or under contract with) the project owner, the following requirements are met:

a. All food service staff (including managers, servers and kitchen staff) are offered annual food allergy training that covers, at a minimum, the following topics:[8]

    1. Overview of food allergies

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2. Anaphylaxis
3. Emergency response
4. Communications protocols
5. Reducing risk for cross-contact
6. Use of recipes and ingredient disclosure
7. Knowledge test

b. During hours of operation, at least one staff member with food allergy training within the past year is present to handle questions and special requests from individuals with food allergies.

Option 2: Food allergy signage

If food is prepared on-site on a daily basis by (or under contract with) the project owner, the following requirement is met:

a. Point-of-decision signage is present to prompt individuals to report any potential food allergies to staff.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 3 Label Sugar Content

For Commercial Dining Spaces:

For standard menu items sold or provided by (or under contract with) the project owner, one of the following requirements is met:

a. Standard menu items do not contain more than 25 g of sugar per serving.
b. The total sugar content for each standard menu item, as usually prepared and offered for sale, is clearly displayed at the point-of-decision on menus and menu boards (in addition to calories as required in Part 1 of this feature).
c. Standard menu items containing more than 25 g of sugar per serving are identified by an icon on menus and menu boards. An explanation of the icon and the health risks of high sugar intake is available at the point-of-decision.[9]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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N03 REFINED INGREDIENTS | O

WELL Certification: 2 Pt | WELL Core: 2 Pt

Intent: Help individuals avoid highly processed foods and refined ingredients.

Summary: This WELL feature requires adequately limiting sugar and refined grains in all foods and beverages.

Issue: Poor diets, characterized by highly processed foods with added sugars, refined grains and *trans* fats, are the second-leading risk factor for mortality and morbidity globally, accounting for 8% of all deaths and contributing to an estimated 9.6% of the global burden of disease.[1] Sugar consumption, especially added sugar, has been associated with poor diet quality, an increased risk of heart disease, obesity and tooth decay.[2–4] Refining grains removes most of their vitamins, minerals and dietary fiber. Dietary fiber has been linked to a lower risk of heart disease, stroke, hypertension, diabetes and obesity and is associated with improved digestive health.[5]

Solutions: Increasing access to healthier food items includes increasing the availability of healthier alternatives, as well as limiting the availability of highly processed foods. Based on recommendations by the World Health Organization (WHO), on average, adults should consume no more than 25 grams of added sugar per day.[2] Limiting intake of sugar-sweetened beverages and sugary foods can help individuals meet the WHO sugar recommendations and reduce their daily sugar intake. Promoting the consumption of whole grains by increasing whole grain options can also help individuals increase their intake of dietary fiber.[4,6]

Part 1 Limit Total Sugars

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Foods and beverages sold or provided on a daily basis by (or under contract with) the project owner meet the following requirements:

a. Beverages do not contain more than 25 g of sugar per container or serving.[2]

b. At least 25% of beverages contain no sugar per container or serving, or drinking water is available at no cost.

c. No non-beverage food item (except whole fruit) contains more than 25 g of sugar per serving.[2]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 2 Promote Whole Grains

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Foods and beverages sold or provided on a daily basis by (or under contract with) the project owner meet the following requirements:

a. In at least 50% of grain-based foods (foods that have a grain flour as the first ingredient or that contain ≥30% grain ingredients), a whole grain is the first ingredient.[7]

b. If both whole grain and refined grain options are available, whole grain options do not cost more than their refined grain counterparts (i.e., brown rice does not cost more than white rice).

> **Note:** Projects must have at least one whole grain option at each food outlet (if grain-based foods are sold or provided) but the 50% calculation may be considered across the entire food service operation (per food category or total number of grain-based foods).

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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N04 FOOD ADVERTISING | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: Encourage the selection and consumption of healthier food choices through advertising and messaging.

Summary: This WELL feature requires healthy food advertising and nutritional messaging.

Issue: Billions of dollars are spent annually on food marketing and advertising around the world to overwhelmingly promote highly processed products, including sugar-sweetened beverages, breakfast cereals and fast foods.[1] Food advertising and marketing is ubiquitous and takes several forms, including direct and indirect advertising, product sale contracts and sponsored materials. Children and youth are particularly susceptible to food advertising.[2] Research has found a strong association between advertising for non-nutritious foods and children's behavioral and mental health.[2] Exposure to unhealthy food advertising increases food consumption in children but not adults.[3] Moreover, the marketing and advertising of high-calorie, low-nutrient foods and beverages increases children's preference and intake of unhealthy foods and beverages.[4] In adults, exposure to food advertising is shown to influence food choices and eating behaviors.[5]

Solutions: Healthy food advertising has been shown to increase the selection of healthier items and may have a stronger impact than anti-obesity advertising on shaping eating behaviors.[6] These interventions have been effective in a variety of food settings including, cafeterias, corner stores, grocery stores and supermarkets.[7–11]

Part 1 Optimize Food Advertising

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Food advertising

If foods and beverages are sold or provided on a daily basis by (or under contract with) the project owner, the following requirements are met:

a. Sugar-sweetened beverages are not advertised or promoted.[12]

b. Deep-fried food options are not advertised or promoted.[13]

c. Deep-fried food options are not displayed under heat lamps.

Option 2: Nutritional messaging

All dedicated eating areas and points of sale contain at least two different instances of messaging that promote one of the following:

a. The consumption of fruits and vegetables.[13]

b. The consumption of drinking water.[14,15]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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N05 ARTIFICIAL INGREDIENTS | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: Help individuals avoid artificial colors, flavors, sweeteners and preservatives in foods and beverages.

Summary: This WELL feature requires projects to label and phase out or restrict artificial ingredients.

Issue: Numerous artificial ingredients are typically added to highly processed foods to improve taste and extend shelf life.[1]However, since these additives do not add nutritional value to a food and tend to appear in foods with low nutritional quality, they should be avoided as often as possible. While some artificial ingredients do not carry immediate health risks, they may become toxic when consumed in large quantities and many have not been evaluated for their effects on metabolic regulation or potential contributions to obesity.[2] Certain artificial dyes that are approved for use in the U.S. may also be carcinogenic, cause hypersensitivity reactions and behavioral problems or be inadequately tested.[3] In the EU, for example, foods that contain artificial dyes are required to carry label warnings that they may cause hyperactivity in children.[4,5]

Solutions: Sourcing packaged foods and beverages without harmful artificial colors, flavors, sweeteners and preservatives can help limit artificial ingredient consumption, as well as promote a diet of whole, natural foods. Labeling and phasing out the use of artificial ingredients that have been deemed ingredients of concern is another way to help individuals avoid consumption of potentially harmful additives. Fortunately, many food companies are phasing out artificial ingredients or reformulating recipes to remove them, a trend partly driven by growing consumer demand and an increased desire for nutritional transparency.[6]

Part 1 Limit Artificial Ingredients

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Artificial ingredient phase out

The following requirements are met:

a. The project phases out (over a maximum of three years) the use, sale and provision of foods and beverages containing artificial ingredients listed in the table below:

Colorings	Blue 1 (E133), Blue 2 (E132), Green 3, Orange B, Citrus Red 2, Red 3 (E127), Red 40 (E129), Yellow 5 (E102), Yellow 6 (E110), carmine, cochineal, caramel coloring
Sweeteners	acesulfame-potassium (acesulfame-k), advantame, aspartame, calcium saccharin, saccharin, sucralose, cyclamate, neotame, polydextrose, olestra
Preservatives	sodium nitrate, sodium nitrite, potassium bromate, potassium iodate, propyl gallate, BHA (butylated hydroxyanisole), BHT (butylated hydroxytoluene), TBHQ, sodium benzoate
Fats & Oils	BVO (brominated vegetable oil), partially hydrogenated oil

b. All foods and beverages sold or provided by (or under contract with) the project owner are clearly labeled on packaging, nearby menus or signage to indicate whether they contain artificial ingredients listed in the table above.

OR

Option 2: Artificial ingredient restriction

The following requirement is met:

a. All foods and beverages sold or provided on a daily basis by (or under contract with) the project owner do not contain artificial ingredients listed in the table below:

Colorings	Blue 1 (E133), Blue 2 (E132), Green 3, Orange B, Citrus Red 2, Red 3 (E127), Red 40 (E129), Yellow 5 (E102), Yellow 6 (E110), carmine, cochineal, caramel coloring
Sweeteners	acesulfame-potassium (acesulfame-k), advantame, aspartame, calcium saccharin, saccharin, sucralose, cyclamate, neotame, polydextrose, olestra
Preservatives	sodium nitrate, sodium nitrite, potassium bromate, potassium iodate, propyl gallate, BHA (butylated hydroxyanisole), BHT (butylated hydroxytoluene), TBHQ, sodium benzoate

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Fats & Oils	BVO (brominated vegetable oil), partially hydrogenated oil

WELL Core Guidance: Meet these requirements in non-leased spaces.

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N06 PORTION SIZES | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: Promote healthy portion sizes and reduce unintended overconsumption and food waste.

Summary: This WELL feature requires reduced-size food options when food is sold or provided and limits dishware sizes when food is self-serve.

Issue: The portion and packaging sizes of many foods have increased significantly over the last 30 years along with rising global obesity rates.[1,2] Research suggests that individuals consistently consume more food and drink when offered larger-sized portions, packages or tableware, than when offered smaller- sized versions.[3] Larger packaging, meal sizes and dishware sizes are possible contributors to growing portion sizes, especially when portion and serving sizes do not align.

Solutions: Smaller portion size options for meals and individual food items can encourage reasonable portions without infringing on individual choice.[4–6] Reducing the portion size of foods and beverages that are not nutrient dense, such as processed foods, can help individuals maintain calorie balance and reduce added sugar consumption.[7] Dishware sizes can also be adjusted to promote healthier portion sizes. Larger dishware is associated with larger self-served portions and greater energy intake in both adults and children.[3,8,9] Individuals also tend to underestimate the quantity of food when it is presented on a larger plate and overestimate the quantity when it is presented on a smaller plate.[10,11] Though the effect of plate size may vary based on an individual's body weight or gender, it may have more influence when purposely used to guide appropriate portions.[8,12,13]

Part 1 Promote Healthy Portions

WELL Certification: 1 Pt | WELL Core: 1 Pt

For Commercial Dining Spaces:

If foods and beverages are sold or provided on a daily basis by (or under contract with) the project owner, the following requirements are met:

a. All standard menu items do not contain more than 650 Cal(650 kCal), or a version or portion of the standard menu item is available at a smaller size and lower cost for at least 50% of all standard menu items containing more than 650 Cal(650 kCal).

b. Where food is self-serve (e.g., buffet), dishware does not exceed the following sizes per occupant type:

Dishware	Primary School Students	Secondary School Students	Adults
Circular plates, diameter	8 in(20 cm)	10 in(25 cm)	10 in(25 cm)
Non-circular plates, surface area	49 in^2(314 cm^2)	79 in^2(507 cm^2)	79 in^2(507 cm^2)
Bowls, volume	8 fl oz(240 mL)	12 fl oz(355 mL)	16 fl oz(473 mL)
Cups, volume	8 fl oz(240 mL)	12 fl oz(355 mL)	16 fl oz(473 mL)

WELL Core Guidance: Meet these requirements in non-leased spaces.

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N07 NUTRITION EDUCATION | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: Support a healthy eating pattern by increasing nutritional knowledge and food literacy.

Summary:
This WELL feature requires the provision of nutrition education.

Issue: Food literacy is defined as an individual's ability to not only understand nutrition information but also to implement this knowledge into their diet through preparation and cooking of food and healthy meals.[1] Studies report a positive relationship between food literacy levels and healthy dietary intake. Unfortunately, due to a global dietary shift away from whole ingredient foods, such as fruits and vegetables, and towards highly processed foods that require little-to-no skill in preparation and cooking, many people lack adequate food literacy to make healthy choices.[2] Therefore, nutrition and food education programs focused on increasing levels of food literacy are important to individual health and well-being. Participation in food and nutrition education programs have been associated with increased fruit and vegetable intake, knowledge of food preparation skills, and improvements in healthy behaviors.[3–7]

Solutions: Nutrition education has been shown to be more effective when focused on changing specific behaviors, rather than only increasing knowledge.[8,9] Nutrition education is also more effective when combined with environmental dietary modifications, such as strategic placement of healthier alternatives, portion size control and menu modifications.[3]Educational programming that includes multiple types of interventions (mixed-method programming) and that is on-going or longer term has a greater impact than short-term, single-method interventions.[3,5] The scope of nutrition and food education may also be broader than personal nutrition and health. For example, education can cover topics, such as safe food handling practices, gardening and food production techniques, as well as food preparation skills.

Part 1 Provide Nutrition Education

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

At least one of the following is offered in-person or virtually to regular occupants at no cost on a quarterly basis at minimum:

a. Cooking demonstrations led by chef-instructors that include fruits and/or vegetables, demonstrate cooking skills and integrate hands-on learning opportunities.

b. Nutrition or dietary education sessions led by an accredited dietitian or accredited nutritionist.

c. Individual nutrition consultations led by an accredited dietitian or accredited nutritionist.

d. Gardening or planting workshops focused on edible plants that integrate hands-on learning opportunities.

> **WELL Core Guidance:** Meet these requirements in the whole building. Education must be made available to all tenants.

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N08 MINDFUL EATING | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Encourage mindful eating behaviors and communal dining opportunities.

Summary: This WELL feature requires dedicated eating space that contains tables and chairs and the provision of daily meal breaks.

Issue: Our eating behaviors are influenced by a variety of factors that extend beyond just hunger. Additional factors that influence our food choices, include economic, social, psychological and environmental determinants. Recently, eating alone and distracted eating have become emerging social concerns and are associated with a variety of social and health outcomes. Studies have found that people who tend to eat alone may be more likely to choose unhealthier foods, eat fewer fruits and vegetables and eat at irregular times.[1]Eating alone may also be a potential risk factor for metabolic syndrome, a group of risk factors that increase the risk of heart disease, stroke and diabetes.[2,3] There is also some evidence to indicate that distracted eating while working, reading, watching television or listening to music is associated with higher food intake both immediately and later on.[4]

Solutions: Eating attentively and placing focus on the process of eating may lead to better control of one's food intake. A positive relationship also exists between mindful eating and mental well-being.[4] The provision of dedicated eating spaces can encourage individuals to enjoy meals together, prevent distracted eating at workstations and lead to better eating habits. In addition to eating spaces, having designated meal periods can help ensure individuals have and take time to eat meals mindfully.

Part 1 Support Mindful Eating

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces except Dwelling Units:

Option 1: Dedicated eating space

A dedicated eating space is located within a 650 ft(200 m) walk distance of the project boundary and meets the following requirements:

a. Contains tables and chairs to accommodate at least 25% of regular occupants at peak occupancy. If multiple dedicated eating spaces are present, the combined seating space must accommodate at least 25% of regular occupants at peak occupancy.

b. Provides protection from environmental elements (e.g., direct sunlight, rain, wind) or is in a climate-controlled space.

c. Accommodates a variety of seating types, including small group (up to 4 people) and large group (more than 4 people) seating.

Option 2: Daily meal breaks

The following requirement is met:

a. Eligible employees and students (as applicable) have a daily meal break of at least 30 minutes.

> **WELL Core Guidance:** Meet the *Dedicated eating space* requirements for building management staff and meet the *Daily meal break* requirements for direct staff. To earn an additional point, also meet the Dedicated eating spaces requirements in leased spaces or in non-leased spaces accessible to tenants.

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N09 SPECIAL DIETS | O

WELL Certification: 2 Pt | WELL Core: 2 Pt

Intent: Provide alternative food choices to individuals with dietary restrictions, food allergies or intolerances, and label common food allergens.

Summary: This WELL feature requires the provision of meal alternatives and food allergen labeling.

Issue: Individuals with food allergies, intolerances or dietary restrictions may encounter difficulty in finding suitable meal options outside of the home setting. The World Allergy Organization reports that the prevalence of food allergies is increasing in countries around the world.[1] A growing number of individuals are also omitting certain ingredients or following special diets for a variety of personal, health, social and environmental reasons.[2] Such dietary exclusion or restriction may have nutritional consequences and lead to a nutritionally deficient diet.[3,4] Dietary guidelines increasingly recognize a variety of healthy eating patterns, such as the Mediterranean-style and vegetarian eating patterns, that can help ensure an individual's diet is both nutritionally adequate and enjoyable.[5]

Solutions: Meal alternatives for common food allergies or intolerances and dietary restrictions can help accommodate individual dietary preferences and ensure the availability of meal options and balanced meals for everyone. Alternatives can minimize the stress and worry associated with food and dietary restrictions. Suitable meal options can also minimize the risk of individuals consuming potentially harmful foods. To further reduce barriers to special dietary needs, alternative food items can be offered at the same or similar price as standard items. Ingredient transparency through accurate food allergen labeling can help individuals identify and avoid potential allergens.

Part 1 Accommodate Special Diets

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Meals sold or provided by (or under contract with) the project owner include main dish options that meet each of the following criteria:

a. Do not contain peanut.
b. Do not contain gluten.
c. Do not contain dairy.
d. Do not contain egg.
e. Do not contain animal, seafood or dairy products.
f. Do not contain animal or seafood products, except for eggs and dairy.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 2 Label Food Allergens

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Foods and beverages sold or provided by (or under contract with) the project owner are clearly labeled at point-of-decision on packaging, menus or signage to indicate if they contain the following common food allergens:

a. Peanut.[6]
b. Fish.[6]
c. Shellfish.[6]
d. Soy.[6]
e. Milk.[6]
f. Egg.[6]
g. Wheat.[6]
h. Tree nuts.[6]
i. Gluten.[6]

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WELL Core Guidance: Meet these requirements in non-leased spaces.

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N10 FOOD PREPARATION | O

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

Intent: Provide space and supportive amenities for the preparation of meals on-site.

Summary: This WELL feature requires a food preparation area, storage space and other amenities to support the reassembly or reheating of meals on-site.

Issue: Consumption of foods away from home has steadily increased since the 1970s.[1] This is a concerning trend, since meals consumed away from home are often higher in calories, lower in nutrients and larger in portion size.[2] Emerging research has found an association between eating away from home and a higher BMI and lower fruit and vegetable consumption in adults.[3] Analysis of dietary intake data also shows that individuals who bring food from home tend to have a better diet quality than individuals who purchase food away from home.[2] In addition to nutritional benefits, preparing meals at home has financial benefits. Frequent home cooking is linked to reduced food expenditures, whereas frequently eating away from home is associated with higher food expenditures.[4]

Solutions: Spaces that allow individuals to reheat or assemble food prepared at home can support healthy eating habits and cooking skills. Sufficient cold storage space can ensure safe food storage to accommodate the storage needs of individuals who bring meals from home. Other supportive amenities, such as eating utensils and devices for reheating food can make it even easier for individuals to consume homemade meals and encourage healthy eating patterns.

Part 1 Provide Meal Support

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces except Dwelling Units & Commercial Kitchen Spaces:

The following supportive amenities are provided in a quantity that meets employee demand in at least one dedicated eating area within a 650 ft(200 m) walk distance of the project boundary:

a. Cold storage.
b. Countertop surface.
c. Sink and amenities for dish and hand washing.
d. Device for reheating food (e.g., toaster oven, microwave).
e. Dedicated cabinets or storage units available for employee use.
f. Reusable, non-plastic plates, bowls, cups and utensils, including spoons, forks and knives.
g. Cans/bins for garbage, recycling and/or compost.

For Dwelling Units:

The following supportive amenities are provided:

a. Countertop surface.
b. Sink.
c. Refrigerator.
d. Cabinets.
e. Stove with hood vented directly to the outdoors.

For Commercial Kitchen Spaces:

The following requirements are met for primary and secondary schools:

a. The space contains the proper kitchen equipment and infrastructure to prepare and serve meals on-site.
b. On school days, at least one meal is prepared and served on-site.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, provide amenities sized for tenant capacity in leased spaces or in non-leased spaces accessible to tenants.

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1. Afshin A, Sur PJ, Fay KA, et al. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for

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N11 RESPONSIBLE FOOD SOURCING | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: Reduce dietary exposure to pesticides, hormones and antibiotics, limit environmental degradation and promote humane livestock practices.

Summary: This WELL feature requires sourcing and labeling certified organic and certified sustainable foods.

Issue: The use of antibiotics and hormones on animals and pesticides on produce is a global threat to public health and the ability to treat infectious diseases. Studies have confirmed that the use of antibiotics in agriculture and animals contributes to the development of antibiotic resistance in humans, and dietary pesticide exposure has been associated with adverse reproductive consequences in women and men.[1–4] The consumption of certain pesticides has also been linked to an increased risk for some types of cancer, and pregnant women exposed to higher amounts of pesticides have given birth to children with lower IQ.[5–7]

Solutions: Responsible sourcing practices and policies can help promote sustainable, ethical and socially responsible food purchases and promote animal welfare. While organically grown foods may not be significantly more nutritious than conventionally grown foods, organic produce has been shown to have lower levels of pesticide residue and organic chicken and pork are less likely to contain antibiotic-resistant bacteria than conventional food.[8] Animal welfare standards serve to ensure that animals are raised in humane conditions and address topics such as space allowance, transportation, feed and outdoor access provided for farm animals.[9] Humane practices also limit the use of antibiotics and hormones on animals. Labeling organic and humanely raised foods can help individuals quickly identify these products, as well as promote local farms and organizations.

Part 1 Implement Responsible Sourcing

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Sustainable sourcing

If foods and beverages are sold or provided on a daily basis by (or under contract with) the project owner, the total product line meets the following criteria:

a. At least 50% of the total produce line (fruits and vegetables) is certified organic.[10]

b. At least 25% of the total animal product line (meat, seafood, egg and dairy products) is certified organic, Certified Humane® or certified by a GSSI-recognized Seafood Certification Scheme.[9,10]

Option 2: Sustainable labeling

Sustainable and humane agriculture is promoted through the following, as applicable:

a. Certified organic and sustainable products are labeled at point-of-decision.

b. Local farms or sources are advertised at point-of-decision for locally sourced foods.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

References

1. Afshin A, Sur PJ, Fay KA, et al. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2019;393(10184):1958-1972. doi:10.1016/S0140-6736(19)30041-8
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N12 FOOD PRODUCTION | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Provide opportunities for on-site food production and increase food access.

Summary: This WELL feature requires the provision of space, infrastructure and tools for on-site food production.

Issue: Changing economic and environmental conditions, along with increasing industrialization, have led to both a physical and emotional disconnect between consumers and their food. Most food is produced or processed hundreds of miles from where it is consumed, often threatening local food systems and contributing to a sense of detachment. More recently, consumers have an increasing desire to know how their food is made, raised or grown, in order to better understand the consequences of their food purchases.[1] This has led to the growth of a global movement committed to reconnecting individuals, communities and local food systems.

Solutions: Increasing access to locally grown food is important for many reasons, including food access and social and environmental health. Individuals who participate in community and home gardening projects have higher levels of fruit and vegetable consumption and are more likely to meet national recommendations for fruit and vegetable intakes than nongardeners.[2–4] Individual participation in community agriculture has also been linked to increased household fruit and vegetable intake.[2] Beyond contributing to nutritional benefits, gardens are associated with several social benefits. Participation in community gardening can help fortify social cohesion and community involvement, increase physical activity, provide on-site educational opportunities and increase perceptions of community safety.[3,5] Gardening may also benefit mental health, by reducing symptoms of anxiety and depression.[6]

Part 1 Provide Gardening Space

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces except Dwelling Units:

A permanent and accessible space for food production is located within a 0.25 mi(400 m) walk distance of the project boundary and meets the following requirements:

a. The space includes at least one of the following:
    1. Garden or greenhouse with food-bearing plants.[7]
    2. Edible landscaping (e.g., fruit trees, herbs).[7]
    3. Hydroponic or aeroponic farming system.
b. The space is open to regular occupants during regular building hours and is accessible the majority of the days in the operating year. Foods grown are made available to regular occupants.
c. The space is at least 1 ft^2(0.09 m^2) per regular occupant or 0.5 ft^2(0.05 m^2) per student, whichever area is greater (up to a maximum of 1,500 ft^2(140 m^2) and not less than 200 ft^2(18.5 m^2)). The area calculated is the actual growing area (vertical or horizontal) used for the production of food-bearing plants.[7] For hydroponic and aeroponic farming systems, the project may halve the growing area calculations, given higher yield.
d. The space includes planting supplies, including planting medium, watering system, lighting (interior spaces only), plants and gardening tools.[7]

For Dwelling Units:

A permanent and accessible space for food production is located within a 0.25 mi(400 m) walk distance of the project boundary and meets the following requirements:

a. The space includes at least one of the following:
    1. Garden or greenhouse with food-bearing plants.[7]
    2. Edible landscaping (e.g., fruit trees, herbs).[7]
    3. Hydroponic or aeroponic farming system.
b. The space is open to regular occupants during regular building hours and is accessible the majority of the days in the operating year. Foods grown are made available to regular occupants.
c. The space is at least 15 ft^2(1.4 m^2) per dwelling unit (up to a maximum of 1,500 ft^2(140 m^2) and not less than 200 ft^2(18.5 m^2)). The area calculated is the actual growing area (vertical or horizontal) used for the production of food-bearing plants.[7] For hydroponic and aeroponic farming systems, the project may halve the growing area calculations given higher yield.

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d. The space provides planting supplies, including planting medium, watering system, lighting (interior spaces only), plants and gardening tools.[7]

WELL Core Guidance: Meet these requirements in non-leased spaces. To earn an additional point, provide amenities sized for tenant capacity.

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N13 LOCAL FOOD ENVIRONMENT | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Increase access to fresh, local and seasonal fruits and vegetables by reducing environmental barriers.

Summary: This WELL feature requires projects to take into consideration the local food environment during site selection or programming.

Issue: Dietary patterns around the world are influenced by a complex mixture of personal, cultural and environmental factors, including the local food environment. The local food environment encompasses the type and density of food retail outlets, including grocery stores and food service outlets, and the consistent availability of healthy, wholesome foods at these venues. However, certain environments have the potential to be more obesogenic than others, promoting weight gain and possibly contributing to obesity.[1] In particular, the presence of smaller grocery stores and fast food establishments influence food choices and is associated with a higher prevalence of obesity.[2]

Solutions:
Locating projects within close proximity to supermarkets, grocery stores and farmers markets can help individuals improve their dietary and lifestyle behaviors, through environments that support better food choices.[2,3] Hospitals and healthcare institutions that host farmers' markets and farm stands contribute to healthier nutrition environments by positively impacting fruit and vegetable consumption, an effective model that may be generalizable to other large institutions.[4,5] Beyond farmers' markets, increased healthy food retail outlet density is associated with a lower BMI, while supermarket availability is associated with meeting dietary recommendations.[6–9] Mobile food markets, food carts and fruit and vegetable stands are additional ways to increase access to fruits and vegetables in the environments where individuals live, work and learn.[4]

Part 1 Ensure Local Food Access

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Supportive environment

The project is located within a 0.25 mi(400 m) walk distance of one of the following:

a. Supermarket or store with a fresh fruit and vegetable section.[10]

b. Farmers' market that is open at least once a week and operates for at least four months of the year.[11]

OR

Option 2: Supportive programming

One of the following requirements is met:

a. The project serves as a distribution point for a community-based agriculture program that delivers fruits and vegetables to regular occupants at least twice a month for at least four months of the year.[11]

b. The project hosts the weekly sale of fruits and vegetables (e.g., fruit and vegetable carts or stands, mobile markets) for at least four months of the year.[12]

OR

Option 3: Supportive transportation

The following requirement is met:

a. Transportation is provided at no-cost between the project and a supermarket, store with a fresh fruit and vegetable section and/or farmers' market.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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N14 **B** RED AND PROCESSED MEATS | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: Increase the availability of plant-based food options and reposition red and processed meat products to decrease their prominence at point-of-decision.

Summary: This WELL feature requires providing plant-based food options, limiting the portion size of red meat and decreasing the prominence of red and processed meats.

Issue: The consumption of meat, including red and processed meat, has been increasing worldwide, a trend with major health and environmental consequences.[1] In 2015, the World Health Organization classified processed meat as carcinogenic (cancer-causing) and red meat as probably carcinogenic.[2] Processed meat includes meat that has been processed through salting, smoking, curing or other processes to improve flavor or preservation while red meat includes unprocessed mammalian muscle meat such as beef, veal, pork and lamb.[2] Although red meat is a source of protein and minerals and vitamins, such as iron and vitamin B12, many studies show that a high intake of red meat is associated with an increased risk of colorectal cancer, heart disease, diabetes and other chronic diseases.[2–4] Consumption of processed meat is more strongly associated with colorectal cancer and also positively associated with stomach cancer.[2] Globally, food production practices that support the consumption of plant-based foods, including meat alternatives, are more likely to contribute to a sustainable food system and healthier environment for all.[5]

Solutions: Providing plant-based meat alternatives, reducing the portion size of red meat servings and repositioning meat products has the potential to decrease the demand for and consumption of meat.[6] The World Cancer Research Fund recommends that individuals who consume red meat limit their intake to no more than three portions per week (equivalent to 12–18 oz(350–500 g) per week) and to avoid eating processed meat.[7] Plant-based protein sources such as nuts, legumes (pulses) and cereals (grains) as well as poultry, fish, eggs and dairy are valuable sources of protein and nutrients and are recommended alternatives to red meat.[7] Smaller portions and leaner cuts of red meat are also encouraged for individuals who normally consume red meat.[7] In food service, chefs and menu developers can help shift eating patterns by positioning red meat as a supplement (side dish) or condiment to plant-based dishes and by limiting processed meat options.[8]

Part 1 Limit Red and Processed Meats

WELL Certification: 1 Pt | WELL Core: 1 Pt

For Commercial Dining Spaces:

The following requirements are met if food is sold or provided on a daily basis by (or under contract with) the project owner, as applicable:

a. At least one plant-based option is available at each food outlet.[8]
b. A single portion or serving of red meat, if sold or provided, is no more than 4 oz(115 g) cooked weight.[7]
c. Red and processed meats, if sold or provided, are placed at the end of self-serve food service lines.[6]
d. Red and processed meats, if sold or provided, are listed last in each menu section or listed on a separate menu and/or menu board.[9]

> **Note:** All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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LIGHT

The WELL Light concept promotes exposure to light and aims to create lighting environments that promote visual, mental and biological health.

Light is the main driver of the visual and circadian systems.[1] Light enters the human body through the eye, where it is sensed by photoreceptors in the retina that are linked to the visual and circadian systems. Humans are diurnal, meaning they are innately prone to wakefulness during the day and sleepiness at night. Light exposure stimulates the circadian system, which starts in the brain and regulates physiological rhythms throughout the body's tissues and organs, such as hormone levels and the sleep-wake cycle.[2] Humans and animals have internal clocks that synchronize physiological functions on a roughly 24-hour cycle called the circadian rhythm. The circadian rhythm is synchronized with the natural day-night cycle through different environmental cues, the main cue being light. Disruption or desynchronization of the circadian rhythm has been linked with obesity, diabetes, depression and metabolic disorders.[3–8] Exposure to bright light at night is associated with circadian phase disruption, which in turn can cause negative health effects, such as breast cancer and metabolic and sleep disorders.[1,6,9,10] High lighting levels at night, including light from bright screens, can contribute to the disruption of the circadian rhythm.[3]

All light—not just sunlight—can contribute to circadian photoentrainment.[11] Given that people spend much of their waking day indoors, insufficient illumination or improper lighting design can lead to drifting of the circadian phase, especially if paired with inappropriate light exposure at night.[12] Humans are continuously sensitive to light, and under normal circumstances, light exposure in the late night/early morning will shift our rhythms forward (phase advance), whereas exposure in the late afternoon/early night will shift our rhythms back (phase delay).[12] Phase delays and phase advances in the circadian rhythm can impact sleep-wake cycles and desynchronize circadian rhythms. To maintain optimal, properly synchronized circadian rhythms, the body requires periods of both light and darkness.[11,13]

Studies have shown that light exposure has an impact on the mood and reduces symptoms of depression in individuals.[14–16] Exposure to light has also been directly linked with health and can affect how we recover and heal. Rooms with large, sun-facing windows have been shown to reduce recovery time for patients suffering from severe depression and those recuperating after heart attacks, compared to similarly afflicted patients in rooms with windows facing buildings or other obstructions.[17] Reduced exposure to daylight has been linked to the onset of depression and impairment of cognitive function in individuals.[18,19] Studies show strong links between better views, brighter light and better performance in office environments.[20,21]

The lighting environments where humans spend their time impact their visual, circadian and mental health. Currently, lighting conditions in most spaces are designed to meet the visual needs of individuals but do not take into account circadian and mental health. This presents an opportunity for projects to provide lighting conditions required by humans for improved health and well-being.

Integrating daylight and electric light to create lighting strategies focused on human health, along with traditional requirements for visual acuity and comfort, can lead to healthier and more productive environments. Understanding the specific needs and preferences of users in a space is integral to creating effective lighting environments. For example, patients in a hospital ward have different lighting requirements than individuals in an office environment. Understanding user needs in a space is key to creating a healthier space. Environments that take into account these lighting strategies and user needs can contribute to improvement of the overall mood and increase the productivity of employees.[1,3]

The WELL Light concept aims to provide a lighting environment that reduces circadian phase disruption, improves sleep quality and positively impacts mood and productivity.

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L01 LIGHT EXPOSURE | P

Intent: Provide indoor light exposure through daylight and electric light strategies.

Summary: This WELL feature requires projects to provide appropriate light exposure in indoor environments through lighting strategies.

Issue: Mammals function on an approximately 24-hour cycle, following what are referred to as circadian rhythms.[1] Light is the main driver of the circadian system, which controls body processes, such as digestion, the release of certain hormones, body temperature and sleep. Humans evolved their sleep schedules to be dependent on the natural day- night cycle. Electric light has only been widely used as a source of light for less than 200 years.[2] The increase in the use of electric lighting has led to indoor environments relying on electric light over daylight. However, reduced exposure to light has been linked to the onset of depression and impairment of cognitive function in individuals.[3,4] Irregular sleep-wake cycles have been linked to poorer academic performance in college students.[5] Studies have shown that light exposure during daytime has been linked to increases in productivity and sleep quality, as well as reduction in symptoms of depression in individuals.[6-8]

Solutions: Providing indoor access to adequate light can positively influence the productivity and mood of individuals, while supporting the alignment of their circadian rhythms with the natural day-night cycle.[9–12] Access to appropriate levels of light in indoor environments can be achieved through building design, façade design, space layout and lighting design. Windows, atriums and skylights are design features that can be utilized to increase daylight in a space. The interior layout of the space also has an impact on the daylight exposure received by users. For example, conference rooms can be added to the center of the floor plate, so that workstations can be situated near windows and have daylight exposure. Lighting strategies using electric lighting can be utilized to achieve required light exposure, when appropriate daylight exposure is not available.

Part 1 Provide Indoor Light

For All Spaces except Dwelling Units:

Option 1: Daylight simulation

The project demonstrates, through computer simulations, that one of the following conditions are achieved:

a. Regularly occupied spaces achieve one of the following targets:

Calculations per IES LM-83-12	Calculations per Annex A of CEN 17037:2018	
Average sDA $_{200,40\%}$ is achieved for > 30% of regularly occupied floor area	OR	Target illuminance 19 fc(200 lux) is achieved for >30% of individual unit area throughout 50% of daylit hours of the year

b. Common spaces that have unassigned seating for at least 15% of regular occupants at any given time achieve one of the following targets:

Calculations per IES LM-83-12		Calculations per Annex A of CEN 17037:2018
Average sDA $_{300,50\%}$ is achieved for > 75% of floor area	OR	Target illuminance 28 fc(300 lux) is achieved for >30% of individual unit area and average illuminance 9 fc(100 lux) is achieved for >95% of individual unit area throughout 50% of daylit hours of the year

OR

Option 2: Interior layout

One of the following requirements is met:

a. At least 30% of the regularly occupied area is within a 20 ft(6 m) horizontal distance of envelope glazing in each floor and/or in each individual unit.

b. Common spaces have unassigned seating and can accommodate at least 15% of regular occupants at any given time. At least 70% of all seating in the spaces is within a 16 ft(5 m) horizontal distance of envelope glazing.

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OR

Option 3: Building design

One of the following requirements is met:

a. The envelope glazing area is no less than 7% of the floor area for each floor level or individual unit.

b. The floor plate is no more than 65 ft(20 m) between opposite walls that each have transparent envelope glazing, and there are no opaque obstructions higher than 3.2 ft(1 m) within a 20 ft(6 m) horizontal distance of the transparent envelope glazing.

OR

Option 4: Circadian lighting design

The following requirement is met:

a. The project achieves at least one point in Feature L03: Circadian Lighting Design.

For Dwelling Units:

Option 1: Daylight simulation

The project demonstrates, through computer simulations, that the following requirement is achieved:

a. One of the following targets are met in each dwelling unit:

Calculations per IES LM-83-12		Calculations per Annex A of CEN 17037:2018
Average sDA 200,40% is achieved for > 30% of regularly occupied floor area	OR	Target illuminance 19 fc(200 lux) is achieved for >30% of individual unit area throughout 50% of daylit hours of the year

OR

Option 2: Facade design

The following requirement is met:

a. The envelope glazing area is no less than 7% of the regularly occupied floor area for each dwelling unit.

OR

Option 3: Circadian lighting design

The following requirement is met:

a. The project achieves at least one point in Feature L03: Circadian Lighting Design.

> **WELL Core Guidance:** Meet these requirements in the whole building. Projects pursuing Option 4 (Feature L03) to achieve this feature are required to have access to at least 10% of leased spaces for testing (identified by the project). Projects pursuing daylighting options and where finishes have not finalized may use the following default surface reflectances:
>
> - Ceilings: 80%
> - Floors: 20%
> - Walls: 50%
>
> The entire floorplate, except circulation areas in non-leased spaces, is to be considered regularly occupied.

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L02 VISUAL LIGHTING DESIGN | P

Intent: Provide visual comfort and enhance visual acuity for all users through electric lighting.

Summary: This WELL feature requires projects to provide appropriate illuminances on work planes for regular users of all age groups, as required for the tasks performed in the space.

Issue: Humans perceive the world through visual cues that are received through images formed on the retina of the eye. The light levels in a space can enhance the user's ability to perform tasks in that space, while contributing to the feeling of spaciousness. The age of the individual is also a factor in the amount of light required for visual acuity. As humans age, the transmission of light through their lenses is reduced. This is due to age-related changes, including increased light absorption by the lenses, smaller pupil size, increased scattering of light due to thicker lenses and yellowing of the lenses.[1,2] This aging of the eye indicates that an increase in light levels is required to ensure visual acuity.

Solutions: While developing a lighting strategy to accommodate the visual acuity of users, it is critical to take into account the tasks conducted, as well as the age of the users. Projects may refer to published recommendations by lighting associations or authorities on using electric lighting design strategies for light levels required on the work plane. Lighting recommendations published by authorities provide a range of lighting levels for different age groups and tasks.

Part 1 Provide Visual Acuity

For All Spaces except Dwelling Units:

Option 1: Visual lighting design

The following requirements are met:

a. All indoor and outdoor spaces (including transition areas) comply with the illuminance thresholds specified in one of the following lighting reference guidelines:
   1. IES Lighting Handbook 10th Edition.[3]
   2. EN 12464-1: 2011.[4]
   3. ISO 8995-1:2002(E) (CIE S 008/E:2001).[5]
   4. GB50034-2013.[6]
   5. CIBSE SLL Code for Lighting.[7]

b. The illuminance thresholds take into consideration the tasks and the age groups of the occupants.

OR

Option 2: Predetermined light levels

The following requirements are met:

a. More than 50% of the occupants are under the age of 65.

b. At least 90% of the project area is comprised of the following space types and meets the associated illuminance thresholds:
   1. Offices and classrooms: minimum 30 fc(320 lux) at task surface.[8]
   2. Lobby, atrium and transition (including corridor and outdoor pathways): minimum 10 fc(110 lux) at floor level.[8]
   3. Storage spaces: minimum 10 fc(110 lux) at floor level.[8]
   4. Dining, Lounge and Restrooms: minimum 10 fc(110 lux) at task surface.[8]

For Dwelling Units:

Option 1: Promote Visual Acuity

The following requirements are met:

a. Lighting is installed in kitchens and bathrooms to comply with the illuminance thresholds specified in one of the following lighting reference guidelines:
   1. IES Lighting Handbook 10th Edition.[3]

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2. ISO 8995-1:2002(E) (CIE S 008/E:2001).[5]
3. GB50034-2013.[6]
4. CIBSE SLL Code for Lighting.[7]

b. For spaces where lighting is not installed, the following is provided to all tenants:

1. Illuminance thresholds for common tasks conducted in spaces
2. Specifications, quantity and location of light fixtures required to meet light levels based on sample layout

Note: Multifamily residential projects may achieve WELL Certification at the Bronze or Silver level without testing in dwelling units, but cannot achieve Gold or Platinum without testing in dwelling units. See Sampling Rates for Multifamily Residential in the WELL Performance Verification Guidebook for further details.

WELL Core Guidance: Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces, which requires access to at least 10% of leased space for testing (identified by the project).

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L03 CIRCADIAN LIGHTING DESIGN | O

WELL Certification: 3 Pt | WELL Core: 4 Pt

Intent: Support circadian and psychological health through indoor daylight exposure and outdoor views.

Summary: This WELL feature requires projects to provide users with appropriate exposure to light for maintaining circadian health and aligning the circadian rhythm with the day-night cycle.

Issue:
Our body's circadian rhythms are kept in sync by various cues, including light. Humans have evolved to base their circadian rhythms around the natural light-dark patterns associated with daytime and night-time. However, with humans being indoors for extended periods of time, exposure to adequate levels of light have been compromised as typical indoor electric light levels often do not equate to the amount of light the human body traditionally receives outdoors.[1] Light deficiencies affects the functioning of the circadian system and quality of sleep. Disruption of circadian rhythm has been linked with obesity, diabetes, depression and metabolic disorders.[2–4] Exposure to light at night has also been associated with negative health effects, such as breast cancer, circadian phase disruption and sleep disorders.[5,6]

Solutions: Since circadian response of humans to light is dependent on the light that enters the eye, factors such as spectral properties of the light, brightness levels, duration, and timing of exposure should be considered. The light levels must be achieved on the vertical plane, at the eye level of the occupant to simulate the light entering the eye of the user.[7,8] It is also important to consider the duration of exposure to light, as well as the timing of exposure. Stimulating the circadian system at night through exposure to bright light can negatively impact sleep quality.[5,9,10]

Part 1 Meet Lighting for Day-Active People

WELL Certification: 3 Pt | WELL Core: 4 Pt

For All Spaces except Dwelling Units:

For workstations used during the daytime, electric lighting is used to achieve the following thresholds:

a. The following light levels are achieved for at least four hours (beginning by noon at the latest) at a height of 18 in(45 cm) above the work-plane for all workstations in regularly occupied spaces:

Threshold	Threshold for Projects with Enhanced Daylight	Points	
At least 150 EML [136 M-EDI(D65)]	OR	The project achieves at least 120 EML [109 M-EDI(D65)] and L05 Part 1 or L06 Part 1	1(2)
At least 240 EML [218 M-EDI(D65)]	OR	The project achieves at least 180 EML [163 M-EDI(D65)] and L05 Part 1 or L06 Part 1	3(4)

b. The light levels are achieved on the vertical plane at eye level to simulate the light entering the eye of the occupant.

For Dwelling Units:

The following requirements are met in each dwelling unit:

a. Electric lighting is used to achieve the following light levels:

Threshold	Threshold for Projects with Enhanced Daylight	Points	
At least 150 EML [136 M-EDI(D65)]	OR	The project achieves at least 120 EML [109 M-EDI(D65)] and at least 2 points in Feature L05: Enhanced Daylight Access	1
At least 240 EML [218 M-EDI(D65)]	OR	The project achieves at least 180 EML [163 M-EDI(D65)] and at least 2 points in Feature L05: Enhanced Daylight Access.	3

b. The light levels are dimmable. If automated lighting is used, it is automatically dimmed after 8:00 pm.

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c. The light levels are achieved in living rooms and kitchens at a height of 55 in(140 cm) in the center of the room. If workstations are present, light levels are achieved at a height of 18 in(45 cm) above the work-plane.

> **WELL Core Guidance:** Meet these requirements in the whole building. Projects must have access to at least 10% of leased space for testing (as identified by the project). In tenant areas, if a sample furniture layout with workstations is not available, light levels must be achieved in the center of the room at a height of 140 cm [55 in].

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L04 ELECTRIC LIGHT GLARE CONTROL | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Minimize glare caused by electric light.

Summary: This WELL feature requires projects to manage glare by using strategies, such as calculation of glare and choosing the appropriate light fixtures for the space.

Issue: Glare is defined as excessive brightness of the light-source, excessive brightness-contrasts and excessive quantity of light[1,2] and is an integral part of lighting design. Reducing glare improves the visual experience of the occupants in the space. Glare has been associated with a host of health issues that range from visual discomfort and eye fatigue to headaches and migraines.[1,3] Studies have also shown that glare can lead to visual impairment and discomfort, which can cause accidents in the workplace. Individuals under the age of 50 are more sensitive to glare.[4] Since a substantial section of the workforce falls into this age group, it is important to address glare to avoid visual fatigue and glare-induced headaches.

Solutions: Electric lighting, the light source, type of luminaires and lighting layout can help to reduce glare.

Part 1 Manage Glare from Electric Lighting

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces except messages.Industrial:

Option 1: Luminaire considerations

Each luminaire meets one of the following requirements for regularly occupied spaces at light output representative of regular use conditions. Wall wash fixtures and concealed fixtures, installed as specified by manufacturer's data, as well as decorative fixtures may be excluded from meeting these requirements:

a. 100% of light is emitted above the horizontal plane.

b. Classified with Unified Glare Rating (UGR) of 16 or lower.

c. Luminance that does not exceed 6,000 cd/m^2 at any angle between 45 and 90 degrees from nadir.

OR

Option 2: Space considerations

The following requirement is met in all regularly occupied spaces:

a. Unified Glare Rating (UGR) of 16 or lower.

For messages.Industrial:

Option 1: Luminaire considerations

Each luminaire meets one of the following requirements for regularly occupied spaces (wall wash fixtures and concealed fixtures, installed as specified by manufacturer's data, as well as decorative fixtures may be excluded from meeting these requirements):

a. Meets requirements in *All Spaces except Industrial Spaces.*

b. Unified Glare Rating (UGR) of 19 or lower.

OR

Option 2: Space considerations

The following requirement is met in all regularly occupied spaces:

a. Unified Glare Rating (UGR) of 19 or lower.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet requirements in leased spaces.

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L05 DAYLIGHT DESIGN STRATEGIES | O

WELL Certification: 4 Pt | WELL Core: 6 Pt

Intent: Provide daylight exposure indoors through design strategies.

Summary: This WELL feature requires projects to design spaces to integrate daylight into indoor environments, so that daylight may be used for visual tasks along with electric lighting. It also provides individuals with a connection to outdoor spaces through windows.

Issue: Humans spend approximately 90% of their time indoors.[1] The way buildings are designed has an enormous impact on occupant exposure to daylight.[2] Exposure to daylight has been proven to have a substantial impact on mood, circadian health and productivity.[2,3] Studies have associated lack of exposure to daylight with a disruption in the circadian rhythms of humans and a decrease in quality of sleep.[2] Rooms with large windows also reduce recovery time for patients suffering from severe depression and those recuperating after heart attacks, compared to similarly afflicted patients in rooms with windows facing buildings or other obstructions.[4–6] Window characteristics have also been found to have an impact on students' performance in schools.[7] Students have been shown to perform better, when they have access to windows that can be opened.[8] Studies also show strong links between quality of views in office environments and performance of employees.[9] Indoor spaces with daylight exposure have been shown to have fewer bacteria, compared to spaces without any light exposure.[10]

Solutions: Building design and interior layout have a substantial impact on the amount of daylight in an indoor space. Indoor daylight access should be accounted for at all stages of building planning from architectural and façade design to interior design and layout. Indoor daylight planning should be coupled with glare control strategies, such as integrating shading for all windows.

Part 1 Implement Daylight Plan

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces except Dwelling Units:

The following requirement is met:

a. One of the following requirements is met for interior daylight exposure:

Interior Layout		Façade Design	Points
70% of all workstations are within 25 ft(7.5 m) of transparent envelope glazing. Visible light transmittance (VLT) is greater than 40%.	OR	Envelope glazing is no less than 15% of the regularly occupied floor area or individual unit. Visible light transmittance (VLT) of windows is greater than 40%.	1(2)
70% of all workstations are within 16 ft(5 m) of transparent envelope glazing. Visible light transmittance (VLT) is greater than 40%.	OR	Envelope glazing is no less than 25% of the regularly occupied floor area or individual unit. Visible light transmittance (VLT) of windows is greater than 40%.	2(3)

For Dwelling Units:

The following requirement is met:

a. One of the following requirements is met in each dwelling unit:

Vertical Envelope Glazing Requirements	Points
Vertical envelope glazing is no less than 15% of each dwelling unit. Visible light transmittance (VLT) is greater than 40%	1
Vertical envelope glazing is no less than 25% of each dwelling unit. Visible light transmittance (VLT) is greater than 40%	2

WELL Core Guidance: Meet these requirements in the whole building.

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Part 2 Integrate Solar Shading

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces:

The following requirements are met in regularly occupied spaces:

a. All vertical transparent envelope glazing has shading that meet one of the following:

Type of Shading	Points
Manual shading controllable by occupants at all times. Shades are regularly opened once a day for all days that the project is in use	1(2)
Shading is automated to prevent glare	2(3)

> **WELL Core Guidance:** Meet these requirements in the whole building. Projects can either install shading in tenant spaces or provide a budget to tenants tied to the implementation of feature requirements.

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L06 DAYLIGHT SIMULATION | O

WELL Certification: 2 Pt | WELL Core: 3 Pt

Intent: Ensure indoor daylight exposure through daylight simulation strategies.

Summary: This WELL feature requires projects to conduct daylight simulation calculations to make informed decisions around fenestration and shading, so as to provide appropriate daylight exposure for occupants.

Issue: The way buildings are designed has an enormous impact on occupant exposure to daylight.[1] Exposure to daylight has been proven to have a substantial impact on mood, circadian health and productivity.[1,2] Studies have associated lack of exposure to daylight with a disruption in the circadian rhythms of humans and a decrease in sleep quality. Students have been shown to perform better when they have access to windows that can be opened.[3] Indoor spaces with daylight exposure have been shown to have fewer bacteria, compared to spaces without any light exposure.[4]

Solutions: Building design and planning has a substantial impact on the amount of daylight in an indoor space. With the myriad of solutions available for daylight ingress and shading, indoor daylight exposure can be optimized by conducting simulations. Daylight simulations can inform choices for shading, support fenestration design, as well as the interior layout of a spaces.[5–7]

Part 1 Conduct Daylight Simulation

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces except Dwelling Units:

The project demonstrates, through computer simulations, that the following conditions are achieved:

a. Regularly occupied spaces achieve one of the following targets:

Calculations per IES LM-83-12		Calculations per Annex A of CEN 17037:2018	Points
Average sDA300,50% is achieved for > 55% of regularly occupied floor area	OR	Target illuminance of 28 fc(300 lux) is achieved for >50% of individual unit area throughout 50% of daylit hours of the year	1(2)
Average sDA300,50% is achieved for > 75% of regularly occupied floor area	OR	Target illuminance of 28 fc(300 lux) is achieved for >50% of individual unit area and average illuminance 9 fc(100 lux) is achieved for >95% of individual unit area throughout 50% of daylit hours of the year	2(3)

For Dwelling Units:

The project demonstrates, through computer simulations, that the following conditions are achieved:

a. Each dwelling unit achieves one of the following targets:

Calculations per IES LM-83-12	Calculations per Annex A of CEN 17037:2018	Points	
Average sDA $_{300,50\%}$ is achieved for > 55% of the regularly occupied floor area	OR	Target illuminance 28 fc(300 lux) is achieved for >50% of individual unit area throughout 50% of daylit hours of the year	1
Average sDA $_{300,50\%}$ is achieved for > 75% of the regularly occupied floor area	OR	Target illuminance 28 fc(300 lux) for >50% of individual unit area and average illuminance 9 fc(100 lux) is achieved for >95% of individual unit area throughout 50% of daylit hours of the year	2

WELL Core Guidance: Meet these requirements in the whole building. If finishes have not finalized may use the following default surface reflectances:

- Ceilings: 80%

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- Floors: 20%
- Walls: 50%

The entire floorplate, except circulation areas in non-leased spaces, is to be considered regularly occupied.

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L07 VISUAL BALANCE | O

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

Intent: Create lighting environments that enhance visual comfort.

Summary: This WELL feature requires projects to develop and implement strategies to create a visually comfortable lighting environment.

Issue: A lighting environment may utilize different kinds of light sources, including daylighting and different types of electric lighting technology. Lighting is planned across spaces to achieve the required ambience and energy efficiency goals. However, fluctuating light levels impact the visual comfort of occupants and could lead to eye fatigue.[1] Sudden increases and decreases in brightness can cause a high level of visual discomfort.[2] Constant changes in lighting have been linked to distraction from the task at hand, which can decrease productivity and impact well-being.[3]

Solutions: Development of a lighting layout and operations schedule to complement the lighting design in a space is key to increasing the comfort of users. Evidence suggests that thoughtful planning of lighting in a space that takes into account color temperature, daylight and electric light supports a visually comfortable lighting environment.[4,5] Consideration of the ages of users, tasks performed and existing physical features in the space are also integral to creating a productive space.

Part 1 Balance Visual Lighting

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Parameters for visual balance

Ambient lighting in all regularly occupied spaces meets at least three of the following requirements:

a. Horizontal and vertical luminance contrast ratios for an ambient light system is no more than 10 between adjacent independently controlled zones.

b. Illuminance uniformity ratio of at least 0.4 or 1:2.5 (minimum light level: average light level) is achieved on any horizontal task plane within a space.

c. Automatic changes in lighting characteristics, such as light levels, changes in color and distribution take place over a period of 10 minutes.

d. The Correlated Color Temperature (CCT) in each room for similar fixtures is consistent (±200 K) at any point of time.

OR

Option 2: Design for visual balance

Lighting is designed by a lighting professional and takes into account the following considerations:

a. Luminance ratios on vertical and horizontal adjacent zones.

b. Illuminance uniformity on horizontal task planes.

c. Changes in lighting characteristics, such as light levels, changes in color and distribution.

d. Color temperature of lights used.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces.

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L08 ELECTRIC LIGHT QUALITY | O

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

Intent: Enhance visual comfort and minimize flicker for electric light.

Summary: This WELL feature requires projects to take into account characteristics of electric light used in the space, such as color rendering and flicker.

Issue: Humans have evolved to depend on the sun as the main and ideal source of light. Humans are tuned to the color rendering provided by daylight and recognize colors in association with daylight.[1] Color can impact peoples' cognition and behavior.[2] Using electric light with high color rendering can improve people's perception of a space, and low color rendering can impact the ability to differentiate between objects and perceive the surroundings accurately. Electric lighting used indoors also has low frequencies of flicker that are not present in daylight. Flicker has been associated with eye strain, headaches, migraines and epileptic seizures.[3–6] In 2016, migraines accounted for 16 million disability adjusted life years (DALYs) in men and 30 million DALYs inwomen.[7]

Solutions: Identifying and utilizing lighting fixtures that emit a high quality of light and do not display signs of flicker contributes to a comfortable and healthy space. Light fixtures with higher color rendering emit light that show colors realistically. Color Rendering Index (CRI) and IES TM-30-15 are commonly used metrics used to determine the color rendering properties of a light source.

Part 1 Enhance Color Rendering Quality

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces except Circulation Areas:

All luminaires (except decorative fixtures, emergency lights and other special-purpose lighting) meet at least one of the following color rendering requirements. If tunable white lighting is used, the requirements are met at 1,000K intervals from the lower end (with a minimum of 2,700K) to the higher end (with a maximum of 5,000k):

a. CRI ≥90.

b. CRI ≥ 80 with R9 ≥ 50.

c. IES $R_f \geq 78$, IES $R_g \geq 100$, -1% ≤ IES $R_{cs,h1} \leq 15\%$.

For Circulation Areas:

All luminaires (except decorative fixtures, emergency lights and other special-purpose lighting) meet at least one of the following color rendering requirements:

a. CRI ≥ 80.

b. IES $R_f \geq 75$, IES $R_g \geq 95$, -7% ≤ IES $R_{cs,h1} \leq 15\%$.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces.

Part 2 Manage Flicker

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

All luminaires, in combination with the appropriate controls (except decorative lights, emergency lights and other special-purpose lighting), used in regularly occupied spaces meet at least one of the following flicker requirements:

a. Classified as "reduced flicker operation" per California Title 24, when tested according to the requirements in Joint Appendix JA-10.[8]

b. Recommended practices 1, 2 or 3 as defined by IEEE standard 1789-2015 LED.[9]

c. Pst LM ≤ 1.0 and SVM ≤ 1.6 for indoor applications per NEMA 77-2017.[10,11]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces.

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L09 OCCUPANT LIGHTING CONTROL | O

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

Intent: Provide individuals with access to customizable lighting environments.

Summary: This WELL feature requires projects to implement innovative lighting strategies that take into account personal preferences of users, as well as their interaction with the physical space.

Issue: Humans spend about 90% of their time indoors and the ambience of the indoor environments has an impact on the well-being and productivity of occupants. Lighting in a space has been shown to have a positive impact on mood and cognitive performance.[1,2] Lighting environments that are customizable by individuals have been shown to improve satisfaction levels.[3] The ages of occupants have an impact on the light levels required for visual acuity.[4,5] Lighting guidelines recommend twice the light levels for individuals over the age of 65 years, compared to individuals between the ages of 25 years and 65 years.[5,6] As humans age, the transmission of light through their lens is reduced. This is due to age related changes, including increased light absorption by the lenses smaller pupil size, increased scattering of light due to thicker lenses and yellowing of the lenses.[7,8]

Solutions: Developing a lighting environment that not only seeks to satisfy the visual and circadian requirements of individuals, but also creates a customizable environment helps to improve productivity, mood and well-being. Innovative lighting strategies, including the customization of a user's immediate environment, can contribute to occupant satisfaction with the space. Creating zones with lighting conditions that are distinct from the lighting in regular workspaces, can create a comfortable and informal environment that individuals can utilize for social interaction. Lighting environments can help to improve mental health, reduce stress and improve visual acuity.[1,9]

Part 1 Enhance Occupant Controllability

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Lighting zones

Ambient lighting systems meet the following requirement:

a. All regularly occupied spaces contain lighting zones as shown in the table below (note: individual rooms smaller than the areas below and/or that have occupancies less than those listed in the table are considered separate zones):

Number of Zones	Number of Zones	Points	
One per 650 ft^2(60 m^2)	OR	One per 10 occupants	1(0.5)
One per 320 ft^2(30 m^2)	OR	One per 5 occupants	2(1)

Option 2: Lighting control system

Each lighting zone meets the following requirements:

a. Lighting systems have at least three lighting levels or scenes that allow for changes in light levels and have the ability to change at least one of the following:
    1. Color.
    2. Color temperature.
    3. Distribution of light by controlling different groups of lights or through preset scenes.
b. All regular occupants have control over their immediate lighting environment through at least one of the following:
    1. Manual controls (e.g. switches or control panels) located in the same space as each lighting zone.
    2. Digital interface available on a computer or phone.
c. Lighting for presentation or projection walls are separately controlled.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces.

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Part 2 Provide Supplemental Lighting

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces except Dwelling Units:

Option 1: Supplemental lighting requirements

The following requirements are met:

a. Occupants are provided supplemental lighting, the light fixtures provided increase the light level on the task surface to at least twice the recommended light levels based on the reference used to meet Feature L02: Visual Lighting Design, Part 1.

b. The supplemental light fixture is positioned to create minimal visual discomfort for the occupant or per manufacturer recommendations for installation.

c. The supplemental light fixture is installed at least 9 in(23 cm) from the front edge of the workstation or other work surface (horizontal distance) or per manufacturer's instructions.

Option 2: Supplemental lighting availability

The following requirements are met:

a. Supplemental light fixtures are provided to occupants upon request at no cost. Requests are fulfilled within eight weeks.

b. At least one supplemental light fixture is available to occupants for trial purposes.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces.

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APPENDIX L1:

The impact of light on the circadian system can be measured using a metric called Equivalent Melanopic Lux. This metric was proposed by Lucas and others (Lucas et al., "Measuring and using light in the melanopsin age." Trends in Neuroscience, Jan 2014). The authors provided a toolbox which for a desired spectrum derives equivalent "α-opic" lux for each of the five photoreceptors in the eye (three cones, rods, and the ipRGCs).

EML is dependent on the light intensity as well as the spectral power density of light at the measurement point. Given a spectrum of light, each equivalent α-opic lux is related to each other by a constant called Melanopic Ratio (R).

To calculate the equivalent melanopic lux (EML), multiply the photopic lux (L) designed for or measured in a building by this constant (R): EML = L × R.

Projects may use spreadsheets published by the authors of the journal article or IWBI for this calculation.

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MOVEMENT

The WELL Movement concept promotes physical activity in everyday life through environmental design, policies and programs to ensure that movement opportunities are integrated into the fabric of our culture, buildings and communities.

Movement is intricately connected to all aspects of daily life. Physical activity encompasses a diverse range of activity domains, including occupational, transportation, household and leisure-time activities. Our understanding of the relationship between physical activity and health continues to evolve. We now know that all movement matters for health and that physical activity can be accumulated through the day in a variety of ways.[1] Therefore, it is critical that our buildings, communities and sociocultural environments consider movement as a vital part of the human condition – and as a key health promotion tool.

Physical inactivity has been a primary focus within the public health community for decades, due to its contribution to pre-mature mortality and chronic diseases, including type II diabetes, cardiovascular disease, depression, stroke, dementia and some forms of cancer.[2–4] Despite the widely understood benefits of regular physical activity, global estimates from 2016 show that nearly a quarter (23%) of the adult population are physically inactive.[4] There are evident disparities between developed and developing countries, where 29% and 15% of the population are estimated to be inactive, respectively.[4] Compared to adults, adolescents and older populations exhibit even higher levels of physical inactivity – about 80% and 53%, respectively.[4] In 2013, it is estimated that physical inactivity cost the healthcare systems globally about $54 billion and contributed to nearly $14 billion in productivity losses.[5] The reasons for these trends are complex and numerous. Global and national social and economic shifts are known to impact health behavior. For example, rising urbanization and economic development are associated with declining physical activity levels.[6]

Sedentary behavior is also rising. Sedentary behavior is distinct from physical inactivity and is characterized as very low-intensity, low-effort activities, such as sitting.[7] In a study published in 2011, self-reported time spent sitting ranged from 3-9 hours per day among adults, globally.[8] It is also has distinct biology, physiology and associated health outcomes. Sedentary behavior has been linked to poor health outcomes, including obesity, type II diabetes, cardiovascular risks and premature mortality.[9–13]

Our current work to combat physical inactivity and sedentary behaviors adopts a systems-thinking approach bringing together diverse minds: from ergonomists to exercise scientists, urban planners to architects, behavior change experts to workplace wellness champions, epidemiologists to policy experts and grass roots community organizers to Fortune 500 companies.

The WELL Movement concept aims to promote movement, foster physical activity and active living and discourage sedentary behavior, by creating and enhancing opportunities through the spaces where we spend our lives. The impact of changing the global physical activity narrative is substantial. Worldwide, if physical inactivity were reduced by 10%, more than half a million deaths could be averted, while over one million deaths could be averted, if physical inactivity was reduced by 25%. Furthermore, the elimination of physical inactivity has been predicted to increase the global lifespan by an average of 0.68 years.[14]

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V01 ACTIVE BUILDINGS AND COMMUNITIES | P

Intent: Facilitate all types of movement, including physical activity and exercise and reduce sedentary behavior through the intentional design of built spaces.

Summary: This WELL feature requires projects to select from a series of design-based optimizations.

Issue: Physical inactivity is linked to premature mortality and chronic diseases, including type II diabetes, cardiovascular disease, depression, stroke, dementia and some forms of cancer.[1–3] Despite widely disseminated physical activity guidelines (Appendix V1), global estimates from 2016 show that nearly a quarter (23%) of the adult population are physically inactive.[3] In addition, our homes, schools, workplaces, communities, jobs and transportation systems have been physically designed to demand less movement and require more sedentary activities.[3,4]

Solutions: We have come to understand that our environments play a significant role in physical activity behaviors.[2,5–10] Active design considers how different components of a building, such as staircases can encourage movement.[11] At a community scale, active design considers the ways in which communities can encourage populations to be active through public infrastructure, such as cycle lanes and green space. These factors, beyond physical activity promotion, also positively impact environmental, social and economic outcomes.[11,12] The impact of changing the global physical activity narrative is substantial. Worldwide, if physical inactivity were reduced by just 10%, more than half a million deaths could be averted, while over one million deaths could be averted, if physical inactivity were reduced by 25%.[13]

Part 1 Design Active Buildings and Communities

For All Spaces:

The project achieves at least one point in one of the following features:

a. Feature V03: Circulation Network.

b. Feature V04: Facilities for Active Occupants.

c. Feature V05: Site Planning and Selection.

d. Feature V08: Physical Activity Spaces and Equipment.

> **WELL Core Guidance:** See applicability for chosen optimization.

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V02 ERGONOMIC WORKSTATION DESIGN | P

Intent: Reduce the risk of physical strain on the body through ergonomic design at workstations that supports neutral body positions for seated and standing work and provides opportunities to alternate between seated and standing positions.

Summary: This WELL feature requires projects to provide ergonomic workstation furnishings to accommodate all users, that allow for customized workstation fit and provide user orientation to workstations covering ergonomic workstation design and adjustability features.

Issue: In 2016, musculoskeletal disorders (MSDs) ranked among the top drivers of global disability.[1,2] MSDs are one of the most commonly reported causes of lost or restricted work time and also contribute to absenteeism and low productivity.[3,4] Risk factors in the workplace vary by the type of tasks being performed. In manual labor work environments, risk factors include heavy lifting, bending, reaching overhead and pushing or pulling heavy objects.[4] In office settings, risk factors are no less prevalent and include workstation design that forces the body into awkward positions along with other occupational factors that expose the body to prolonged or repetitive tasks.[5]

Solutions: An ideal ergonomic work environment is conducive to the necessary breadth of tasks assigned to that space, while encouraging movement through a variety of positions throughout the day. Effective ergonomic interventions to accommodate all users include both design (e.g., adjustable furniture) and programmatic (e.g., education) approaches.[6,7] Ergonomic design solutions facilitate customizability at workstations allowing users to better fit workstations to their needs. Preliminary studies have demonstrated an ROI for ergonomics interventions. One study found a return of $10 USD for every $1 USD invested.[8] A second study examining outcomes across 250 case studies found generally positive results, including a reduction in the number (49.5% across 37 studies) and cost (64.8% across 22 studies) of work-related MSDs, and also noted that the payback period was generally less than one year.[9]

Part 1 Support Visual Ergonomics

For Office Spaces:

Option 1: Desktop computer monitors

All computer monitors can be positioned by the user (monitor height, viewing angle, horizontal distance), through one or more of the following:

a. Monitors with built-in height and angle adjustment.[10,11]

b. Monitor stands or arms that allow height, angle and horizontal adjustment.[10,11]

Option 2: Laptop computers

All laptops meet one of the following requirements:

a. The laptop is paired with an external keyboard, mouse and stand such that the laptop screen can be positioned by the user (height, viewing angle, horizontal distance).[11]

b. The laptop is used with an external monitor that meets Option 1.[11]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces. Projects can either install amenities or provide a budget to tenants tied to the implementation of feature requirements.

Part 2 Provide Height-Adjustable Work Surfaces

For Office Spaces:

At least 25% of all workstations can be adjusted by the user for both seated and standing work, through one of the following:

a. Manual or electric height-adjustable work surfaces that provide users with the ability to customize workstation height at both seated and standing positions.[10,11]

b. Supplemental solutions (e.g., stand) that allow all or part of the work surface, monitor and primary input devices (e.g., keyboard, mouse) to be raised or lowered to seated or standing heights.[10,11]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces. Projects can either install amenities or provide a budget to tenants tied to the implementation of feature requirements.

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Part 3 Provide Chair Adjustability

For Office Spaces:

All seating at workstations can be adjusted by the user, including the following:

a. Seat height.[10,11]

b. Seat depth.[10,11]

c. One additional adjustability requirement:

   1. Backrest height and lumbar support.[10,11]
   2. Backrest angle.[10,11]
   3. Armrest height and distance between armrests.[10,11]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces. Projects can either install amenities or provide a budget to tenants tied to the implementation of feature requirements.

Part 4 Provide Support at Standing Workstations

For All Spaces:

All workstations in which users are regularly required to stand for 50% or more of their working hours (e.g., assembly line station, hotel check-in counter, supermarket check-out counter) incorporate at least two of the following:

a. Anti-fatigue mats, impact reducing flooring or a similar strategy.[12]

b. Recessed toe space at least 4 in(10 cm) depth and height.[13]

c. A footrest or footrail.[12,14]

d. A leaning chair.[12,14]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces. Projects can either install amenities or provide a budget to tenants tied to the implementation of feature requirements.

Part 5 Provide Workstation Orientation

For All Spaces:

The following requirement is met:

a. All eligible employees receive an orientation (e.g., in-person training, interactive education, video or smartphone-based education with competency verification) to workstations in the space covering, at minimum, the following:

   1. Ergonomic and adjustability features of a given workstation and their benefits.
   2. Demonstration on how to make adjustments based on individual needs.
   3. Available resources that can be used for future reference and where to access them.

> **WELL Core Guidance:** Meet these requirement in non-leased spaces.

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V03 CIRCULATION NETWORK | O

WELL Certification: 3 Pt | WELL Core: 6 Pt

Intent: Encourage stair use through aesthetic design, signage and visibility of staircases.

Summary: This WELL feature requires projects to design staircases for everyday use and leverage aesthetics, visibility/positioning, and prompts to encourage stair use.

Issue: Physical inactivity and sedentariness have emerged as a primary focus of public health in recent years, due to the host of negative health implications associated with both behaviors.[1–6] Strategies that promote stair use and general movement throughout buildings have emerged as promising interventions that encourage short bouts of health-enhancing physical activity throughout the day.[7,8]

Solutions: Evidence from systematic reviews (including international data from a variety of settings, such as airports, healthcare facilities, universities and offices) suggests that stairwell enhancements and signage increase stair use.[9–12] In particular, point-of-decision design prompts that include directional signage and motivational messaging have been shown to be effective at increasing stair use.[9–14] Evidence suggests that improving aesthetic and atmosphere with design, music and artwork, as well as tailoring motivational signage and prompts to the audience or population the space serves, may help increase intervention effectiveness.[9,15,16] Novel strategies, such as gamification, which leverages game elements to encourage desired behaviors, have been introduced as fun and innovative ways to encourage healthy behaviors, such as stairclimbing in both public and private settings.[17] At an infrastructural level, considering where stairs are placed, which is particularly relevant for new construction projects, can have a large impact on movement opportunities throughout the day. Evidence-based guidelines, such as the Active Design Guidelines suggest that stairs should be proximate to main entry points and located physically and visibly before elevator or escalator banks.[7]

Part 1 Design Aesthetic Staircases

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

At least one staircase is open to regular occupants, services all floors of the project and is aesthetically designed through the inclusion of at least two of the following on each floor:

a. Music.[7]
b. Artwork.[7]
c. Light levels of at least 215 lux(20fc) when in use.[7,18]
d. Windows or skylights that provide access to daylight.[7,18]
e. Natural design elements (e.g., plants, water features, images of nature).[7]
f. Gamification.[17]

> **Note:** Interiors projects may count base building stairs, which connect the project to the ground floor or lobby towards feature requirements, even if base building stairs are outside of the project boundary.

> **WELL Core Guidance:** Meet these requirements in the whole building.

Part 2 Integrate Point-of-Decision Signage

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

At least one staircase is open to regular occupants, services all floors of the project and is supported by the following:

a. Point-of-decision signage is present at the following locations:
    1. Near the main building entrance or the reception desk.[7]
    2. At elevator or escalator banks on each floor.[7]
    3. At the base of stairs and stairwell re-entry points on each floor.[7]
b. If stairs are not visible from signage locations, wayfinding signage is used to guide occupants to the stairs.[7]

> **Note:** Interiors projects may count base building stairs, which connect the project to the ground floor or lobby towards

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feature requirements, even if base building stairs are outside of the project boundary. For interiors projects, point-of-decision signage must be implemented at all locations on the project's floor and on the ground floor.

WELL Core Guidance: Meet these requirements in the whole building.

Part 3 Promote Visible Stairs

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

At least one staircase is open to regular occupants, services all floors of the project and meets the following requirement:

a. Located physically and/or visibly before elevators/escalators as measured from the main point of entry to the building.[7,18]

Note: Interiors projects may count base building stairs, which connect the project to the ground floor or lobby towards feature requirements, even if base building stairs are outside of the project boundary.

WELL Core Guidance: Meet these requirements in the whole building.

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V04 FACILITIES FOR ACTIVE OCCUPANTS | O

WELL Certification: 3 Pt | WELL Core: 5 Pt

Intent: Foster active commuting through facilities that support cycling to the building and active occupants more broadly.

Summary: This WELL feature requires projects to provide bike storage along with showers, changing facilities and lockers, which support both active commuters and active occupants.

Issue: Cycle commuting is associated with lower cardiovascular disease incidence and mortality, cancer incidence and all-cause mortality.[1] From 2000-2016, federal funding in the U.S. for pedestrian and cyclist infrastructure increased from 0.1% to 2.2% of transportation spending, which translated to an increase in those walking and biking to work.[2] However, research suggests that many communities still lack sufficient funding and infrastructure to support active commuting intentions.[2] For example, among safety concerns and pervasive societal norms of the car culture, lack of bike parking and post-commute facilities are key reasons why people opt not to cycle to the workplace.[3–8]

Solutions: In a comprehensive review of the literature on this topic, studies reported that availability of amenities, such as bike parking and showers had a positive impact on cycling.[9] Projections from one study showed that compared to baseline (5.8%), outdoor parking would increase those cycling to work to 6.3%, indoor, secure parking to 6.6% and indoor parking plus showers to 7.1%.[10] In addition, lockers and changing/shower facilities, in particular, support activity goals and behaviors not only for cyclists but all occupants, such as those who might engage in physical activity or exercise before work. Such amenities signal to occupants that physical activity and, in particular, active commuting, is welcomed and encouraged. Thoughtful site planning and selection can also enhance opportunities for cycling. The presence of cyclist infrastructure, such as cyclist lanes and, in particular, infrastructure that promotes cyclist safety, is known to increase ridership.[11–13]

Part 1 Provide Cycling Infrastructure

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces except Dwelling Units & Retail Spaces:

Option 1: Cycling network

One of the following requirements is met:

a. The project is located in an area (zip or postal code) with a minimum Bike Score® of 50.[14]

b. The project is located within a 650 ft(200 m) walk distance of an existing cycling network that connects riders to at least 10 use types that are within a 3 mi(4.8 km) cycling distance of the project boundary.[15] Uses and restrictions are defined in Appendix V2.[16]

c. The project demonstrates existing plans for a cycling network that meets requirements a or b.

Option 2: Bike parking

The following requirements are met:

a. Bike parking is provided in the following quantities:

    1. Short-term bike parking (e.g., public bike rack) is located within a 100 ft(30 m) walk distance of a functional building entrance and can accommodate at least 2.5% of peak visitors (minimum of four spaces per building).[15]

    2. Long-term bike parking (e.g., bike room) is available within the project boundary and can accommodate at least 5% of regular occupants, excluding occupants under eight years old (minimum of four spaces per building).[15]

b. The project provides access to basic bike maintenance tools (e.g., bike pump and patch kit) co-located with long-term bike parking or quarterly on-site bike maintenance services.

> **Note:** Interiors projects may count base building amenities towards feature requirements.

For Retail Spaces:

Option 1: Cycling network

One of the following requirements is met:

a. The project is located in an area (zip or postal code) with a minimum Bike Score® of 50.[14]

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b. The project is located within a 650 ft(200 m) walk distance of an existing cycling network that connects riders to at least 10 use types that are within a 3 mi(4.8 km) cycling distance of the project boundary.[15] Uses and restrictions are defined in Appendix V2.[16]

c. The project demonstrates existing plans for a cycling network that meets requirements a or b.

Option 2: Bike parking

The following requirements are met:

a. Bike parking is provided in the following quantities:

   1. Short-term bike parking (e.g., public bike rack) is located within a 100 ft(30 m) walk distance of the main building entrance and includes at least two short-term bike storage spaces per 5000 ft^2(465 m^2) of floor area (minimum of two spaces per building).[17]
   2. Long-term bike parking (e.g., bike room) is available within the project boundary and can accommodate at least 5% of regular occupants (minimum of two spaces per building).[17]

b. The project provides access to basic bike maintenance tools (e.g., bike pump and patch kit) co-located with long-term bike parking or quarterly on-site bike maintenance services.

Note: Interiors projects may count base building amenities towards feature requirements.

For Dwelling Units:

Option 1: Cycling network

One of the following requirements is met:

a. The project is located in an area (zip or postal code) with a minimum Bike Score® of 50.[14]

b. The project is located within a 650 ft(200 m) walk distance of an existing cycling network that connects riders to at least 10 use types that are within a 3 mi(4.8 km) cycling distance.[15] Uses and restrictions are defined in Appendix V2.[16]

c. The project demonstrates existing plans for a cycling network that meets requirements a or b.

Option 2: Bike parking

The following requirements are met:

a. Bike parking is provided in the following quantities:

   1. Short-term bike parking (e.g., public bike rack) is located within a 100 ft(30 m) walk distance of the main building entrance and can accommodate at least 2.5% of peak visitors (minimum of four spaces per building).[15]
   2. Long-term bike parking (e.g., bike room) is located within the project boundary and can accommodate at least 30% of regular occupants (minimum of one space per building).[15]

b. The project provides access to basic bike maintenance tools (e.g., bike pump and patch kit) co-located with long-term bike parking or quarterly on-site bike maintenance services.

Note: Interiors projects may count base building amenities towards feature requirements.

WELL Core Guidance: Meet these requirements in the whole building.

Part 2 Provide Showers, Lockers and Changing Facilities

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces except Dwelling Units:

The following requirements are met:

a. Showers with changing facilities are available in a quantity listed below within a 650 ft(200 m) walk distance of the project boundary:[15]

Regular Occupants (age 12 or older)	Required Number of Showers
0 - 100	One

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101 - 999	One plus one for every 150 occupants above 100
1,000 – 4,999	Eight plus one for every 500 occupants above 1,000
5,000 + occupants	16 plus one for every 1,000 occupants above 5,000

b. At least five lockers are available for every shower. Lockers are co-located with shower facilities.

WELL Core Guidance: Meet these requirements in the whole building.

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V05 SITE PLANNING AND SELECTION | O

WELL Certification: 4 Pt | WELL Core: 6 Pt

Intent: Promote movement, physical activity and active living through site and nearby amenities that facilitate walkability and provide proximate access to public transportation.

Summary: This WELL feature requires projects to demonstrate that the area around the building is fostering walkability and that the building is located near public transportation.

Issue: Over time, nearly every aspect of our built environment has been designed to demand and invite less movement – giving preference to sedentary activities, such as driving.[1] In addition to interior active design, the context in which a WELL project is situated, including neighborhood and site-level factors, plays an integral role in physical activity opportunities and choices.[2–6]

Solutions: The impact of thoughtful site planning, design and selection reaches beyond positive impacts on physical activity and active living, improving nearly every aspect of community health and vitality from social well-being to economic development.[7–9] There is no single metric or recipe that defines a walkable community. Features of walkable neighborhoods vary throughout the literature but centralize around several core design themes: proximity, connectivity, density, safety and aesthetics.[10] Walkable communities consider the needs of diverse users and abilities and are designed to facilitate mobility across the lifespan. Communities can be evaluated at different scales, down to the street and building scale. Single buildings can actually have important contributions to the streetscape. Buildings that activate the first level by incorporating aesthetic design can make positive contributions to the pedestrian environment.[11,12]

Part 1 Select Sites with Pedestrian-friendly Streets

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces:

Option 1: Pedestrian-friendly streets

At least one functional building entrance opens to a pedestrian network (i.e., streets where pedestrians travel, featuring at minimum sidewalks) and one of the following requirements is met:

a. The project is located in an area (zip or postal code) with a minimum Walk Score® of 70.[13]
b. The project is located on a street with restricted vehicular traffic.[14]
c. Within a 0.25 mi(400 m) walk distance of the project boundary, 90% of the total street length has continuous sidewalks present on both sides and two of the following:
    1. At least eight existing use types are present within a 0.25 mi(400 m) walk distance of the project boundary.[15] Uses and restrictions are defined in Appendix V1.[15,16]
    2. There are speed limits of 25 mph(40 kmh) or less and buffer protections along sidewalks (e.g., curb extension, bioswales, bike lane, parked cars, benches, trees, planters).[17-19]
    3. Street segments intersect one another (excluding alleys) at least every 260-330 ft(80-100 m).[16,17]

Option 2: Pedestrian-friendly environment

All exterior building walls (excluding alleys) incorporate some combination of the following design elements on the street level façade (i.e., first floor or first 18 vertical ft(5.5 vertical m), whichever is less):

a. Windows or glazing that provide transparency into the space.[17,20,21]
b. Overhangs such as canopies, awnings, eaves or shades.[17,20,21]
c. Murals or other artistic installations.[17,20,21]
d. Biophilic design elements (e.g., plants, water features, nature patterns, natural building materials).[17,20,21]
e. Mixed building textures, colors and/or other design elements.[17,20,21]

> **WELL Core Guidance:** Meet these requirements in the whole building.

Part 2 Select Sites with Access to Mass Transit

WELL Certification: 2 Pt | WELL Core: 3 Pt

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For All Spaces:

One of the following requirements is met:

a. The project is located in an area (zip or postal code) with a minimum Transit Score® of 70.[22]

b. The project is located within a 650 ft(200 m) walk distance of existing bus network that provide at least 72 weekday trips and 30 weekend trips.[22]

c. The project is located within a 0.25 mi(400 m) walk distance of existing bus rapid transit stops, light or heavy rail stations, commuter rail stations or ferry services that provide at least 72 weekday trips and 30 weekend trips.[22]

WELL Core Guidance: Meet these requirements in the whole building.

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V06 PHYSICAL ACTIVITY OPPORTUNITIES | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Encourage physical activity and exercise through no-cost physical activity opportunities for occupants.

Summary: This WELL feature requires projects to provide no-cost physical activity opportunities led by a qualified physical activity professional.

Issue: Nearly a quarter of the global population fails to achieve physical activity guidelines and is considered physically inactive.[1] Key determinants of physical activity behavior include time, convenience, motivation, self-efficacy, weather conditions, travel and family obligations, fear of injury, lack of social support and environmental barriers such as availability of sidewalks, parks and bicycle lanes.[2,3] In a review conducted by the Centers for Disease Control and Prevention, two studies highlighted economic benefits of workplace programs, including reduced healthcare costs, decreased costs and days lost due to disability, reduced absenteeism and increased productivity.[4]

Solutions:
The workplace is considered an effective platform to reach a broad segment of the adult population.[5] Therefore, workplace wellness programs and offerings are considered great steps toward decreasing barriers to physical activity engagement among employees.[6] The Community Preventive Services Task Force recommends worksite programs that make physical activity more readily available (e.g., providing health club memberships, changing insurance benefits, providing opportunities to be physically active) as a strategy to improve physical activity engagement.[7]

Similar to the workplace, schools represent a ubiquitous platform to reach adolescents and youth.[5] The Community Preventive Services Task Force recommends classroom-based teaching strategies and physical education curricula that incorporate activity as promising strategies to increase physical activity among adolescents.[8] When considering physical activity education and programming, it is vital to consider the needs of the population that the project serves. Events and education should be relevant to the community (i.e., ability and age-appropriate). Projects should also seek to solicit on-going feedback from their population and make an effort to consider feedback in revisions to programmatic offerings.

Part 1 Offer Physical Activity Opportunities

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

No cost physical activity opportunities are available to regular occupants and meet the following requirements:

a. Programming is appropriate for the project population (e.g., age, ability, culture).
b. Programming is offered in-person within a 650 ft(200 m) walk distance of the project boundary or virtually.
c. Programming is delivered by a qualified physical activity professional either in-person or virtually.
d. As applicable, physical activity opportunities are not withheld as a form of punishment for early childhood education, primary or secondary school students.[9]
e. Programming is offered at the following frequencies, as applicable:

Employees and University Students	Early Childhood Education, Primary and Secondary School Students (as applicable)	Points
At least one 30-minute event per week	At least one 60-minute event per week	1(0.5)
≥ 150 minutes per week[10]	≥ 60 minutes per school day[10]	2(1)

> **WELL Core Guidance:** Meet these requirements for building management staff. To earn an additional point, also meet these requirements in non-leased spaces by making physical activity programming available to tenants.

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V07 ACTIVE FURNISHINGS | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Encourage movement, postural breaks and switching and discourage prolonged sitting or standing at stationary workstations through active workstations.

Summary: This WELL feature requires projects to provide ample active workstations, such as a sit-stand or treadmill desk.

Issue: Sedentary behavior has been linked to numerous negative health outcomes, including obesity, type 2 diabetes, cardiovascular and metabolic risks and premature mortality.[1–5] Sedentary behavior also poses health risks, despite activity levels, and may even negate the positive health effects associated with physical activity.[1,6–8]

Solutions: Active workstations have grown in popularity in commercial office environments in recent years. Active workstations are effective at decreasing time spent sitting, thereby increasing energy expenditure.[9–13] Studies do not suggest there is an impact on productivity for sit-stand or treadmill desks with more mixed findings for bicycle desks.[11,12,14–18] Evidence further suggests that offering active workstations along with education, prompts and/or behavior change counseling may support sustained behavior change and further reduce sitting time.[19–21]

Part 1 Provide Active Workstations

WELL Certification: 2 Pt | WELL Core: 1 Pt

For Office Spaces:

Active workstations are available to all employees who primarily work at stationary workstations (e.g., desk) and present in quantities described in the table below and may include the following types:

a. Manual or electric height adjustable desks that provide users the ability to customize workstation height at both seated and standing positions.

b. Supplemental solutions that allow all or part of the work surface and all input devices (monitor or screen, keyboard, mouse) to be raised or lowered to seated or standing heights.

c. Treadmill desk.

d. Bicycle desk.

e. Stepper machine.

Active Workstation Quantity	Points
At least 50% of workstations	1(0.5)
At least 90% of workstations	2(1)

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces. Projects can either install amenities or provide a budget to tenants tied to the implementation of feature requirements.

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V08 PHYSICAL ACTIVITY SPACES AND EQUIPMENT | O

WELL Certification: 2 Pt | WELL Core: 2.5 Pt

Intent: Promote physical activity and exercise by providing access to physical activity spaces and equipment at no cost.

Summary: This WELL feature requires projects to provide access to a physical activity space at no cost through an on-site fitness facility, nearby facility or nearby outdoor spaces, such as a park.

Issue: International physical activity guidelines recommend both cardiovascular and muscle strengthening activities for the general population.[1] Despite widely disseminated guidelines, nearly a quarter of the general population fails to achieve recommended physical activity levels.[2] Key determinants of physical activity behavior include time, convenience, motivation, self-efficacy, weather conditions, travel and family obligations, fear of injury and lack of social support.[3,4] At a community scale, additional environmental barriers exist, such as availability of sidewalks, parks and bicycle lanes.[3,4]

Solutions: In a systematic review conducted by the U.S. Centers for Disease Control and Prevention, creating enhanced places for physical activity increased engagement and biomarkers for physical fitness, including aerobic capacity and energy expenditure, with a few studies documenting some decrease in body weight and body fat.[5] Creating space within a building for physical activity is important, along with larger efforts to design communities to encourage movement. Factors such as proximity and quality of parks are important predictors of physical activity, although more consistent research is needed.[6,7]

Part 1 Provide Indoor Activity Spaces

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: On-site physical activity spaces

A dedicated fitness facility is available within the project boundary at no cost to regular occupants and is sized according to one of the following requirements:

a. The space includes at least two types of exercise equipment (e.g., free weights, treadmill) in quantities that allow use by at least 5% of regular occupants at any time.[8]

b. The space includes at least two types of exercise equipment (e.g., free weights, treadmill) and is at least 270 ft^2(25m^2) plus 1 ft^2(0.1 m^2) per regular occupant, up to a maximum of 10,000 ft^2(930 m^2).[9]

OR

Option 2: Off-site physical activity facilities

The following requirement is met:

a. The project provides regular occupants access to a fitness facility within a 650 ft(200 m) walk distance of the project boundary at no cost.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in the whole building.

Part 2 Provide Outdoor Physical Activity Space

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

At least one of the following outdoor physical activity spaces is within a 0.25 mi(400 m) walk distance of the project boundary and available at no cost to regular occupants:

a. Green space (e.g., park, walking/biking trail).

b. Blue space (e.g., swimming area).

c. Recreational field or court.

d. Fitness zone that includes all-weather fitness equipment.

e. For projects with child occupants, play space geared toward children (e.g., playground).

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WELL Core Guidance: Meet these requirements in the whole building.

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V09 PHYSICAL ACTIVITY PROMOTION | O

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

Intent: Encourage physical activity and exercise, by designing, implementing and monitoring physical activity incentive programs.

Summary: This WELL feature requires projects to provide physical activity incentives or promotion programs and monitor uptake of offerings.

Issue: Physical inactivity has emerged as a primary focus of public health, due to a rise in premature mortality and chronic diseases attributed to inactive lifestyles, including type 2 diabetes, cardiovascular disease, depression, stroke and some forms of cancer.[1,2] Physical activity is intimately tied to prevention of these chronic conditions and overall health across the lifespan.[3] In adolescent populations, physical activity is especially important for health, well-being and development.[3]

Solutions:
Health promotion programs in the workplace typically take a comprehensive approach to behavior change, including environmental design and behavioral strategies.[3–5] There isn't a templatized program that can be applied and deliver results in every workplace.[3] It is, therefore, critical that projects take an integrative approach and design a program that is tailored to the needs of the population they serve. Physical activity incentives are one of many strategies that can be used. In a systematic review examining different incentives, conditional incentives – particularly those that rewarded positive physical activity behavior – were effective at improving physical activity levels as compared to unconditional incentives (e.g., subsidized memberships that do not require participation).[6]

Just as workplaces are a ubiquitous platform to reach working populations, programs targeting schools are a key avenue to reach student populations.[3] In schools, some of the most common and well-recognized strategies to provide physical activity opportunities are through physical education curricula, recess, afterschool programs and sport, and activation of classrooms to incorporate more movement.[3,7–9] It's also recommended that schools incorporate programs that address sedentary behavior, such as screen time, as part of a comprehensive approach to health promotion.[10]

Part 1 Offer Physical Activity Incentives

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Incentives for eligible employees

The project offers at least two of the following physical activity promotion programs to eligible employees:

a. Rewards for physical activity engagement (e.g., prizes, financial rewards).

b. A subsidy towards physical activity costs incurred by employees (e.g., membership fees or group fitness classes), including those incurred during business travel.

c. Reductions in health care premiums based on physical activity engagement.

d. Flexible work hours to accommodate physical activity.

e. Paid time off for physical activity with a minimum of four days per calendar year. Days must be used towards physical activity engagement or recovery and may not be deducted from regular paid time off or other employer-provided time off from work (e.g., sick leave, standard paid holidays).

Option 2: Employee utilization of incentive programs

One of the following requirements is met:

a. The project monitors utilization of incentive programs and demonstrates an annual utilization rate of 50% (i.e., at least 50% of eligible employees have utilized at least one incentive over the past year). The project may report combined utilization rates across multiple incentives, as appropriate.

b. The project demonstrates an annual improvement in utilization of at least 10 percentage points. The project may report combined utilization rates across multiple incentives, as appropriate.

Option 3: Physical activity for students

Early childhood education, primary and secondary schools develop and implement the following programs for students:

a. A program that aims to reduce daily time spent in the following sedentary behaviors:

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1. TV viewing.
2. Recreational computer or smartphone use.
3. Gaming.

b. A program that aims to promote daily physical activity through at least one of the following:

1. Teaching strategies that incorporate movement and activity into the lesson.
2. Physical education.
3. Recess or similar physical activity breaks.

WELL Core Guidance: Meet these requirements for direct staff.

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V10 SELF-MONITORING | O

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

Intent: Promote self-awareness of health behaviors and health metrics through wearable technology.

Summary: This WELL feature requires projects to provide or subsidize wearables that can monitor physical activity and health behaviors over time.

Issue: Much of what we understand about physical activity's relationship to health and well-being is derived from studies that utilize self-reported measures of physical activity.[1] Evidence suggests that self-reported measures tend to overestimate actual physical activity behaviors.[2]

Solutions: Objective, accelerometer-based tools that track physical activity have proliferated the marketplace.[3–5] Estimates from 2016 indicate 33% of people across 16 countries (including 20,000 individuals) used a wearable or app to track physical activity and health parameters.[3,6,7] In addition, an estimated 44.5% of employers leverage them in strategic planning of wellness programs.[8] Evidence from a systematic review conducted by the U.S. Centers for Disease Control and Prevention shows that, particularly when paired with coaching and counseling, technology tools can have a positive impact on recording reliable data and improving health outcomes.[9] In a comprehensive review led by the U.S. Physical Activity Guidelines Committee, researchers found evidence that wearable activity monitors, including simple step counters, when paired with goal-setting, were effective at increasing physical activity.[10] In a meta-analysis of several randomized controlled trials, use of a step counter paired with a step goal significantly reduced sedentary time among adults.[11] Projects should consider privacy and data security among users when they are vetting technologies to recommend to their occupants, and when projects may have access to users' wearable data.

Part 1 Provide Self-Monitoring Tools

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

The project provides devices (e.g., wearable fitness tracker) to all eligible employees that meet the following requirements:

a. Available at no cost or subsidized by at least 50%.

b. Allow users to monitor their own metrics over time (i.e., provides a dashboard where individual metrics are aggregated).

c. Measure at least two physical activity metrics (e.g., steps, floors climbed, activity minutes).

d. Measure at least one additional health behavior (e.g., mindfulness practice, sleep).

> **WELL Core Guidance:** Meet these requirements for building management staff. To earn an additional point, also meet these requirements in leased spaces.

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V11 **B** ERGONOMICS PROGRAMMING | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Enhance well-being and comfort through comprehensive ergonomics programming.

Summary: This WELL feature requires projects to work with a certified ergonomist to implement comprehensive ergonomics programming, commit to on-going improvements to ergonomic design and provide ergonomic support for remote workers.

Issue: In 2016, musculoskeletal disorders (MSDs) ranked among the top drivers of global disability.[1,2] MSDs are one of the most commonly reported causes of lost or restricted work time and also contribute to absenteeism and low productivity among employees.[3,4] These losses amount to significant impacts for the economy at large and a business's bottom line.[5] Ergonomic issues affect many sectors from schools to industrial settings and commercial offices, each with unique, contextual risks and considerations.[6]

Solutions: Ergonomic interventions aim to accommodate all individuals and increasingly adopt a holistic approach that tackles the design of the physical environment (e.g., adjustable furniture), the work itself (e.g., process, practices) and behavior (e.g., education, training).[7,8] Ergonomic interventions have been shown to have a positive impact and a substantial return on investment (ROI). One study found that after implementing a macro-ergonomics intervention, claims over a 5-year period were reduced by 45% (200 fewer total claims) and researchers determined an ROI of 10:1 for the program. In this study, ROI calculations considered the compensation costs per claim, the number of preventive ergonomic evaluations performed and the annual cost of the program.[9] Another study examining outcomes across 250 case studies, across a variety of sectors from healthcare (36) to offices (40), manufacturing facilities (87) and other industries, found generally positive results and noted that the payback period was generally less than one year.[10]

Part 1 Implement an Ergonomics Program

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Professional ergonomics support

One of the following requirements is met:

a. The project regularly engages with a certified ergonomist (consultant, contractor or other third-party) who supports the project in achieving this feature.
b. The project has at least one employee who is a certified ergonomist and supports the project in achieving this feature as defined in their job description and performance expectations.

Option 2: Ergonomics programming

An ergonomics program is in place that includes the following, at a minimum:

a. Consultation with key stakeholders (e.g., human resources, workplace wellness, occupational safety, leadership, employees) who are involved in the successful design, implementation and evaluation of the ergonomics program.
b. Incorporation of ergonomics into the project's health-oriented mission statement documented in Feature C02: Integrative Design, Part 2.
c. A task analysis performed by a certified ergonomist to identify job roles and tasks that are performed by occupants in the space.
d. Individual ergonomic assessments are made available to eligible employees. Assessments are offered by a certified ergonomist either as self-assessments (e.g., reputable, third-party app), in-person (e.g., at the workplace or home) or virtually, the results of which are shared with the employee. Assessments are offered to employees at least annually and, as applicable, at the following times:
    1. Employee on-boarding.
    2. Substantial equipment changes (e.g., purchase of a new chair) or redesign (e.g., revised workstation layout).
    3. Change in health status (e.g., injury, pregnancy, presentation of symptoms of musculoskeletal issues or visual strain) or a change in work environment (e.g., transition to or from full-time remote work).
e. Strategies for employee engagement including, at minimum, annual training (e.g., workshop, seminar, classes) delivered by a certified ergonomist.

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Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for direct staff. To earn an additional point, also meet these requirements in leased spaces. Projects can provide a budget to tenants tied to the implementation of feature requirements, as appropriate.

Part 2 Commit to Ergonomic Improvements

WELL Certification: 1 Pt | WELL Core: 1 Pt

Note: Projects may only achieve this part if Part 1 is also achieved.

For All Spaces:

Option 1: Informed Ergonomic Design

The following requirement is met:

a. The project describes how Part 1 informed design-decisions within Feature V02: Ergonomics Workstation Design and, as applicable, Feature V07: Active Furnishings.

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

OR

Option 2: Individual Ergonomic Needs

The following requirement is met:

a. The project demonstrates a commitment to addressing the individual ergonomic needs of employees identified through individual ergonomics assessments. The timeline for delivery of solutions are communicated to employees.

WELL Core Guidance: Meet these requirements for direct staff. To earn an additional point, also meet these requirements in leased spaces. Projects can provide a budget to tenants tied to the implementation of feature requirements, as appropriate.

Part 3 Support Remote Work Ergonomics

WELL Certification: 1 Pt | WELL Core: 1 Pt

Note: Projects may only achieve this part if Part 1 is also achieved.

For All Spaces:

For projects where remote work is part of current organizational practices or part of business continuity plans involving temporary or unplanned remote work periods (e.g., office renovation, natural disaster, pandemic), the following requirements are met:

a. The ergonomics program in Part 1 is tailored to support remote work scenarios (e.g., virtual versus in-person assessments, context-specific education).

b. The project makes ergonomic supports, including, at minimum, ergonomic furnishings available to remote workers that fit their needs (as identified in Part 1) through pre-approved direct-purchases, reimbursement or subsidies.

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for direct staff.

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APPENDIX V1:

Diverse use types:[1]

Category	Use type
Food retail	Supermarket
	Grocery with a produce section
Community-serving retail	Convenience store
	Farmer's market
	Hardware store
	Pharmacy
	Other retail
Services	Bank
	Family entertainment venue (e.g., theater, sports)
	Gym, health club, exercise studio
	Hair care
	Laundry, dry cleaner
	Restaurant, café or diner (excluding those with only drive-thru service)
Civic and community facilities	Adult or senior care (licensed)
	Child care (licensed)
	Community or recreation center
	Cultural arts facility (museum, performing arts)
	Education facility (e.g., K–12 school, university, adult education center, vocational school, community college)
	Government office that serves public on-site
	Medical clinic or office that treats patients
	Place of worship
	Police or fire station
	Post office
	Public library
	Public park
	Social services center
Community anchor uses	Commercial office (100 or more full-time employees)
	Housing (100 or more dwelling units)

The following restrictions apply to Appendix V1:

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1. A use may be counted as only one use-type (e.g., a single retail space may be counted only once, even if it sells products in several use categories).
2. No more than two uses in each use type may be counted (e.g., if five restaurant spaces are within the required distance, only two may be counted).

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1. U.S. Green Building Council. LEED BD+C: Core and Shell - Surrounding density and diverse uses. https://www.usgbc.org/credits/core-shell/v2012/ltc4. Accessed January 1, 2018.

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THERMAL COMFORT

The WELL Thermal Comfort concept aims to promote human productivity and provide a maximum level of thermal comfort among all building users through improved HVAC system design and control and by meeting individual thermal preferences.

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Thermal comfort is defined as "the condition of mind that expresses satisfaction with the thermal environment and is assessed by subjective evaluation."[1] Thermal comfort greatly influences our experiences in the places where we live and work[2] and is one of the highest contributing factors influencing overall human satisfaction in buildings[3–5] impacting individual levels of motivation, alertness, focus and mood.[5] Its influence on the integumentary, endocrine and respiratory body systems also allows thermal comfort to play a large role in our health, well-being and productivity. Beyond the scope of individual impact, the indoor thermal environment also impacts a buildings' energy use, since cooling and heating in developed and many developing countries account for approximately half of a building's energy consumption. [6,7]

Despite technological advancements, great improvements in our understanding of thermal comfort in buildings and existing standards establishing specific criteria indicating buildings should provide an acceptable thermal environment for a minimum 80% of occupants,[8] many people still feel uncomfortable during the work day.[9,10] In fact, studies have shown only 11% of the office buildings surveyed in the U.S. provided thermal environments that met accepted goals of human satisfaction.[11] Moreover, as many as 41% of office workers have expressed dissatisfaction with their thermal environment.[11] Such levels of dissatisfaction may be detrimental not only to the individual but also the business at large, since leading research indicates that employees perform on average 15% poorer in hot conditions and on average 14% poorer in cold conditions.[12] In contrast to those who are dissatisfied with thermal conditions, office workers who are satisfied with their thermal environment can be more productive in the workplace.[11]

Thermal comfort is subjective, which means that not everyone will be equally comfortable under the same conditions. This highlights that a one-size-fits-all approach to thermal comfort in buildings invariably fails for large numbers of people.[13] A comfortable thermal environment that satisfies all occupants is challenging to achieve, due to individual preferences and possible spatial and temporal variations in the thermal environment.[14] There is a need for a holistic approach to thermal comfort that can satisfy the individual preferences of all (or nearly all) building users. When possible, personal thermal comfort devices should be used. These have been shown to improve self-reported productivity rates, decrease symptoms associated with sick building syndrome and increase thermal comfort.[15] However, due to the difficulties of setting temperature levels that suit all individual preferences,[1] thermal comfort conditions should create baseline satisfaction for the largest number of people. Overall, systems should always be designed with human-centric thermal zoning in mind, helping to optimize the system's thermal performance.[16]

The WELL Thermal Comfort concept takes a holistic approach to thermal comfort and provides a combination of research-based interventions to help design buildings that address individual thermal discomfort and support human health, well-being and productivity.

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T01 THERMAL PERFORMANCE | P

Intent: Provide a thermal environment that the majority of building users find acceptable.

Summary: This WELL feature requires projects to create indoor thermal environments that provide comfortable thermal conditions to the majority of people in support of their health, well-being and productivity.[1,2]

Issue: The thermal environment substantially impacts a building's energy footprint, since in many countries heating and cooling account for approximately half of a building's energy consumption.[3,4] Furthermore, the indoor thermal environment is ranked as one of the strongest contributing factors to overall human satisfaction in the built environment.[5] The thermal environment not only impacts comfort and productivity, but due to its linkages to integumentary, endocrine and respiratory body systems, thermal comfort can also cause a variety of detrimental health outcomes.[1,6] Overly warm indoor spaces are linked to increases in sick building syndrome symptoms, irregular heart rate, respiratory issues, fatigue and negative mood.[7] Cold work environments have been linked to increased effort and work towards maintaining proper posture and increased risk for chronic issues related to musculoskeletal health.[8]

Solutions: Thermal comfort standards utilize a model that provides a means of predicting whether humans in a mechanically conditioned space will be satisfied with the thermal environment based on six core parameters: air temperature, humidity, air movement, mean radiant temperature of surrounding surfaces, metabolic rate and clothing insulation.[9,10] For naturally conditioned buildings, the adaptive thermal comfort model correlates human comfort directly with indoor operative temperature and outdoor temperature.[11,12] Achieving thermal satisfaction among people requires some level of control over thermal comfort parameters in any given environment.

Part 1 Provide Acceptable Thermal Environment

For All Spaces except Commercial Kitchen Spaces:

Option 1: Performance verified environmental conditions

The following requirements are met, as applicable:

a. Mechanically conditioned regularly occupied spaces meet one of the following thermal comfort conditions:[25]

PMV Range	Percentage of Occupied Hours	Percentage of Regularly Occupied Spaces	Other Requirements
+/- 0.5	For at least 90%	At least 90%	N/A
+/- 1.0	For at least 98%	At least 95%	At least two points in either Feature T03, Feature T04 or in combination

b. Naturally conditioned regularly occupied spaces meet all the following conditions:[1]

Prevailing Mean Outdoor Temperature, $t_{pma(out)}$	Indoor Operative Temperature	Notes
Minimum	50 °F(10 °C)	$t_{pma(out)}$ × 0.31 + 47.9 °F(14.3 °C)	N/A
Maximum	92 °F(33.5 °C)	$t_{pma(out)}$ × 0.31 + 60.5 °F(16 °C)	Occupant-controlled elevated air speed may be used to increase this maximum per ASHRAE 55-2013

c. Mixed-mode-conditioned spaces meet the requirements for both mechanically and naturally conditioned spaces, when each is in operation

OR

Option 2: Long-term thermal data

The following requirements are met:

a. Project meets Feature T06: Thermal Comfort Monitoring.

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b. Temperature and humidity data covering, at minimum, the previous six months satisfy one of the following ranges:

1. One of the PMV or temperature ranges described in Option 1. Dry bulb temperature may be used in place of operative temperature. Naturally conditioned projects must also measure outdoor air temperature.

2. Dry bulb temperature is between 70-77 °F(21-25 °C) for at least 90% of standard occupied hours.[14] The designed air velocity is not more 40 fpm(0.2 m/s) at 5.6 ft(1.7 m) above the floor.

> **Note:** Projects undergoing recertification which were previously awarded Feature T06 must consider all data collected since the previous certification.

OR

Option 3: Thermal comfort surveys

The following requirement is met:

a. The project achieves at least two points in Feature T02: Verified Thermal Comfort.

For Commercial Kitchen Spaces:

The following requirement is met:

a. The operative temperature in the kitchen does not exceed 80 °F(27 °C).

> **Note:** Multifamily residential projects may achieve WELL Certification at the Bronze or Silver level without testing in dwelling units, but cannot achieve Gold or Platinum without testing in dwelling units. See Sampling Rates for Multifamily Residential in the WELL Performance Verification Guidebook for further details.

> **WELL Core Guidance:** Meet these requirements in the whole building. Mechanically conditioned or mixed-mode ventilated spaces must provide heating and cooling capacity in leased spaces but are not required to install ducts in leased spaces. Performance testing will be conducted in regularly occupied non-leased spaces, if present.

Part 2 Monitor Thermal Parameters

For All Spaces except Dwelling Units:

Option 1: Annual testing

Conduct ongoing monitoring according to the following requirements:

a. The dry-bulb temperature, relative humidity, air speed (only for projects that use elevated air speed method) and mean radiant temperature are monitored in regularly occupied spaces at intervals no less than twice a year (including once in June, July or August and once in December, January or February), and results are submitted annually through the WELL digital platform.

b. The number and location of sampling points comply with the requirements outlined in the Performance Verification Guidebook.

> **Note:** Projects are not required to use devices or methods that comply with the requirements described in the Performance Verification Guidebook. However, if measurements are undertaken by a WELL Performance Testing Agent in compliance with the Performance Verification Guidebook, results submitted to GBCI from each year and test location may be averaged and utilized for recertification purposes.

OR

Option 2: Continuous monitoring

The following requirement is met:

a. Project meets Feature T06: Thermal Comfort Monitoring.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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T02 VERIFIED THERMAL COMFORT | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Enhance thermal comfort and promote human productivity, by ensuring that a substantial majority of building users (above 80%) perceive their environment as thermally acceptable

Summary: This WELL feature requires projects to provide high levels of thermal comfort, by determining occupant satisfaction through a survey.

Issue: Due to the strong influence of the thermal comfort, standards establish that building's thermal environment must satisfy a minimum of 80% of occupants to be considered acceptable.[1] However, despite having established standards, studies have also shown that only 11% of office buildings surveyed in the U.S. provide thermal environments that meet generally accepted goals of human satisfaction[2]. Similarly, as many as 41% of office workers have expressed dissatisfaction with the thermal environment.[2,3] Building users who are satisfied with their thermal environment have been shown to be more productive in the workplace,[2] while thermal discomfort is associated with sick building syndrome symptoms and other conditions that lead to a decrease in productivity.[2,4]

Solutions: Building occupants are an invaluable source of information that can be used for improving the performance of buildings. Thermal comfort surveys allow projects to objectively gauge which building services and design features are or are not performing well and help to prioritize the steps needed to improve occupant thermal comfort satisfaction and workplace productivity. If survey results indicate that percentage of occupants dissatisfied with thermal conditions in the building exceeds the targeted thresholds, it is necessary to develop a detailed plan for action and commitment to address occupant dissatisfaction with thermal conditions.

Part 1 Survey for Thermal Comfort

WELL Certification: 3 Pt | WELL Core: 3 Pt

For All Spaces:

A post-occupancy survey is administered at least twice a year, including once in June, July or August and once in December, January or February, at least six months after occupancy, which satisfies the following conditions:

a. All regular occupants are invited to participate in the anonymous survey, and responses are collected from the following number ofrespondents:[1]

Number of Regular Occupants	Minimum Number of Responses
More than 45	35% of those regular occupants
20 to 45	15 regular occupants
Less than 20	80% of those regular occupants

b. The survey includes an assessment of overall satisfaction with thermal performance and identification of thermal comfort-related issues in accordance with either:

   1. The sample survey in Appendix T1.
   2. Any pre-approved survey listed in Part 1: Administer Project Survey in Feature C03: Occupant Survey.

c. The results of the survey responses comply with one of the target satisfaction thresholds as specified in the table below:

Thermal Comfort Satisfaction Thresholds	Points
80% of regular occupants	2
90% of regular occupants	3

> **WELL Core Guidance:** Meet these requirements in the whole building. All regular occupants must be invited to participate in the survey. The scope of the survey may be limited to thermal conditions in non-leased spaces.

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T03 THERMAL ZONING | O

WELL Certification: 2 Pt | WELL Core: 3 Pt

Intent: Enhance thermal comfort of people in buildings through the provision of thermal zoning in each

Summary: This WELL feature requires projects to increase thermal control of the space, by allowing control of either the conditions of a thermal zone or movement between thermal zones.

Issue: People in buildings who are satisfied with their thermal environment have been shown to be more productive in the workplace.[1,2] For instance, employees perform on average 15% poorer in hot conditions and on average 14% poorer in cold conditions.[3] An average 2% decrease in work performance per 1.8 °F(1 °C) of air temperature rise has been found, when the air temperature is above 77 °F(25 °C).[4] On the other hand, even a 1.8 °F(1 °C) decrease in air temperature within the range of 77 °F(25 °C) is linked to increased student performance in mathematics.[5] Furthermore, thermal comfort preferences are highly individual and can be affected by metabolism, body type, clothing and other personal factors.[6–8] These personalized factors make it nearly impossible to find a temperature that will satisfy all individuals in the same space at the same time.[9]

Solutions: Indoor air temperature can be influenced by a number of factors, including the building physics and orientation, building location and structure, occupant density, ventilation strategy and mode of operation. In the majority of buildings, the HVAC system is responsible for controlling indoor air temperature and humidity. Where temperature zoning is an option, individually accessible thermostats that enable people to set their own thermal conditions independently of other zones should be used.

Part 1 Provide Thermostat Control

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces:

The following requirements are met for at least 90% of regularly occupied spaces:

a. Control over temperature in the space is available through either:
   1. Thermostats present within the thermal zone.
   2. A digital interface accessible to occupants on a computer or phone.

b. The maximum size of each thermal zone is 650 ft^2(60 m^2) or 10 occupants, whichever is larger.

c. Projects earn points based on the number of thermal zones:

Number of Zones		Number of Zones	Points
One per 650 ft^2(60 m^2)	OR	One per 10 occupants	1(2)
One per 320 ft^2(30 m^2)	OR	One per 5 occupants	2(3)

d. Temperature sensors are positioned at least 3.3 ft(1 m) away from exterior walls, windows and doors, direct sunlight, air supply diffusers, mechanical fans, heaters or any other significant sources of heat or cold.

WELL Core Guidance: Meet these requirements in the whole building.

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T04 INDIVIDUAL THERMAL CONTROL | O

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

Intent: Maximize and personalize thermal comfort among all individuals.

Summary: This WELL feature requires projects to improve thermal comfort of people in the space through the provision of personal thermal comfort devices and flexible dress codes that support individual thermal preferences.

Issue: Many thermal comfort standards (such as ASHRAE 55) aim to provide a thermal environment, where at minimum 80% of people will perceive the thermal environment as acceptable.[1] Due to the individualized nature of thermal comfort, not everyone will be equally comfortable under the same environmental conditions. Besides the six primary factors of thermal comfort, many secondary factors, such as age, sex, health condition, personal thermal adaptation and thermal history, including climatological origin, are considered as major secondary factors.[2–5]Factors, such as temperament, preferences, social and cultural norms and seasonal variation also play an important role in determining individual thermal comfort.[6,7]

Solutions: Adopting holistic approaches through the provision of individual thermal control devices results in improved individual thermal comfort and in the expansion of the thermal comfort acceptability limits.[6,8] Individual thermal control also allows for a broader range of recommended indoor air temperatures, which is linked to energy savings potential.[9–11] In larger shared spaces, use of personalized equipment is a good strategy to give people the ability to better control their sensation and comfort.[12–14] For example, the use of a chair equipped with fans allows the room air temperature to increase without compromising thermal comfort.[15–17] In addition, flexible dress codes are important, because clothing insulation is also one of the primary forms of intervention for addressing suboptimal thermal conditions.[18]

Part 1 Provide Personal Cooling Options

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces except Dwelling Units:

All regular occupants can cool their individual environment through one or more of the following:

a. A user-adjustable thermostat connected to the building's mechanical cooling system or to an air conditioning unit. The room or thermal zone controlled by the thermostat may not be regularly occupied by more than one person.[19]

b. Desk fan or ceiling fan that does not increase air speed for other occupants.[19]

c. Chair with mechanical cooling system.[19]

d. Any other solution capable of affecting a PMV change of -0.5 within 15 minutes from activation, without changing the PMV for other occupants.[19]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in the whole building.

Part 2 Provide Personal Heating Options

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces except Commercial Kitchen Spaces & Dwelling Units:

All regular occupants can warm their individual environment through one or more of the following:

a. A user-adjustable thermostat connected to the building's mechanical heating system. The room or thermal zone controlled by the thermostat may not be regularly occupied by more than one person.[19]

b. Electric parabolic space heater.[19]

c. Electric heated chair or footwarmers.[19]

d. Blankets, which are washed at least weekly.[19]

e. Any other solution capable of affecting a PMV change of +0.5 within 15 minutes from activation, without changing PMV for other occupants.[19]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in the whole building.

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Part 3 Allow Flexible Dress Code

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces except Commercial Kitchen Spaces & Dwelling Units:

The following requirement is met:

a. A flexible dress code policy is in place that allows regular occupants to dress for individual thermal preferences.[20]

> **WELL Core Guidance:** Meet these requirements for direct staff.

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T05 RADIANT THERMAL COMFORT | O

WELL Certification: 2 Pt | WELL Core: 4 Pt

Intent: Maximize volume of the space, reduce dust transmission, improve ventilation control and increase thermal comfort by incorporating radiant heat and cooling systems into the building design.

Summary: This WELL feature requires projects to use radiant systems and independently controlled ventilation systems.

Issue: Mean radiant temperature is one of the six core thermal comfort parameters. It is influenced by a surface material's ability to absorb or emit radiant heat, the extent to which the surface area is exposed to the person (view factor) and the temperatures of the surrounding objects. Uniform thermal radiation may be disrupted by cold windows, uninsulated walls, equipment and improperly sized heating panels, causing local thermal discomfort.[1] In addition, conventional "all-air" systems have a higher risk of draft discomfort, due to elevated indoor air velocity.[2] Studies show occupants have a 50% probability of indoor temperature satisfaction in spaces with radiant systems, compared to conventional "all-air" systems.[3]

Solutions: Radiant heating systems are designed to affect mean radiant temperature, and thus the heat exchange with the people in the space, by supplying heat directly to the surrounding surfaces of the floors, walls and ceilings. With radiant systems, the heat transfer due to radiation increases, while the heat transfer due to convection decreases. Buildings with radiant systems have the advantage of quiet operation, low energy consumption and the capability of design integration with an independent ventilation system.[4] Coupling a radiant system with a dedicated air system separates the twofold role of the mechanical system controlling both heating/cooling and ventilation allowing for better control of the thermal environment. The use of radiant heating and cooling also reduces the number of allergens circulated in the air, since this type of system does not use forced air to distribute heating or cooling.

Part 1 Implement Radiant Heating

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

At least 50% of the regularly occupied project area is heated with one or more of the following:

a. Radiant ceilings, walls or floors.

b. Radiant panels which cover at least half of the wall or ceiling to which they are attached (does not include steam radiators).

> **WELL Core Guidance:** Meet these requirements in the whole building. Up to 10% of the total area occupied by tenants can be excluded from the feature scope.

Part 2 Implement Radiant Cooling

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

At least 50% of the regularly occupied project area is cooled with one or more of the following:

a. Radiant ceilings, walls or floors.

b. Radiant panels that cover at least half of the wall or ceiling to which they are attached.

> **WELL Core Guidance:** Meet these requirements in the whole building. Up to 10% of the total area occupied by tenants can be excluded from the feature scope.

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T06 THERMAL COMFORT MONITORING | O

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

Intent: Monitor and effectively address unacceptable thermal comfort conditions and inform building managers and users of the thermal comfort parameters of their indoor environment.

Summary: This WELL feature requires projects to monitor thermal comfort parameters using sensors in their buildings that can be used as feedback for building managers and users to take appropriate actions.

Issue: Unfavorable levels of heat, humidity and ventilation are associated with people's experience of itchy eyes, headache and throat irritation.[1] Outdoor weather, indoor occupancy and building physics and performance, including ventilation rates, are highly variable and have a direct impact on human perceptions of thermal comfort. To maintain ideal performance metrics, projects should continuously gather data on thermal comfort parameters in order to inform remediation actions.

Solutions: Building HVAC systems should be designed to monitor and control for variations in indoor air temperature, mean radiant temperature, relative humidity and air movement. Thermal comfort monitoring can help building users to be aware of and promptly fix any deviations in thermal comfort metrics. These measures by themselves will not resolve the issue of potential thermal discomfort, but they certainly raise awareness and are an important first step toward a solution. In addition to having calibrated sensors, the positioning of the sensors plays an important role in the accurate assessment of the thermal environment.

Part 1 Monitor Thermal Environment

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Thermal comfort monitors

The project monitors dry-bulb temperature and relative humidity, satisfying the following requirements:

a. Sensors are located in occupiable areas; 3.6-5.6 ft(1.1-1.7 m) above the floor; and at least 3.3 ft(1 m) away from exterior walls, doors, direct sunlight, air supply/exhausts, mechanical fans, heaters or any other significant source of heat or cold.

b. A minimum of one sensor per 3,500 ft^2(325 m^2) of occupiable floor area.

c. Measurements are taken at least once every 15 minutes.

d. Sensors comply with the Device Requirements listed in the WELL Performance Verification Guidebook.

Option 2: Reporting & maintenance

The following requirements are met:

a. Data are submitted annually through the WELL digital platform.

b. Sensors are recalibrated or replaced at least every three years and certificates attesting their calibration or replacement are submitted every three years through the WELL digital platform.

Option 3: Environmental measures display

Real-time display of dry-bulb temperature and relative humidity is made available to occupants through one of the following:

a. Display screens, with at least one screen located in each 3,500 ft^2(325 m^2) zone of regularly occupied space.

b. A website or mobile application, with at least one sign located in each 3,500 ft^2(325 m^2) zone of regularly occupied space, indicating where the data may be accessed.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. Data displays must be placed in tenant-accessible areas or otherwise be made available to tenants. To earn an additional point, also meet these requirements in leased spaces.

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T07 HUMIDITY CONTROL | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Limit the growth of pathogens, reduce off-gassing and maintain thermal comfort by providing the appropriate level of humidity.

Summary: This WELL feature requires projects to maintain optimum relative humidity levels that are conducive to human health and well-being.

Issue: When air temperature is within a comfortable range for occupants, the effects of humidity on thermal comfort is generally uninfluential.[1] However, in warm temperature settings, humidity can influence the degradation of building materials, the ability of the human body to release heat through evaporation and the level of discomfort from excess moisture on the skin.[1–3] If the humidity is too high, the human body has a limited capacity to cool down through sweating.[4] Warm and humid indoor spaces are also associated with mold and fungal growth.[5] Moreover, humidity in warm spaces may promote the accumulation and growth of microbial pathogens, including bacteria and dust mites which can lead to odors and cause respiratory irritation and allergies in sensitive individuals.[5] Conversely, cold and dry spaces can lead discomfort and irritation of the airways, skin, eyes, throat and mucous membranes[6] and facilitate the spread of the influenza virus.[7,8]

Solutions: Buildings situated in climates with broad humidity ranges can maintain relative humidity within healthy and comfortable levels, by adding or removing moisture from the air.[9]

Part 1 Manage Relative Humidity

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Mechanical humidity control

The following requirement is met in all regularly occupied areas, except high-humidity areas:

a. The mechanical system has the capability of maintaining relative humidity between 30% and 60% at all times by adding or removing moisture from the air.[10,11]

OR

Option 2: Humidity modeling

The following requirement is met for all regularly occupied areas, except high-humidity spaces:

a. The modeled relative humidity levels in the space are between 30% and 60% for at least 98% of all business hours of the year.

OR

Option 3: Long-term humidity data

The following requirements are met:

a. Project meets Feature T06: Thermal Comfort Monitoring.

b. Humidity data for all regularly occupied areas, except high-humidity spaces covering at least the previous six months are between 30% and 60% for at least 98% of all business hours of the year.

> **Note:** Projects undergoing recertification, which were previously awarded Feature T06, must consider all data collected since the previous (re)certification

> **WELL Core Guidance:** Meet these requirements in the whole building. Projects pursuing Option 1 are required to have access to at least 10% of leased space for testing (as identified by the project).

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T08 **B** ENHANCED OPERABLE WINDOWS | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Provide the benefits of increased outdoor air supply while minimizing any resulting thermal discomfort.

Summary: This WELL feature requires windows that can be opened at different elevations to provide desired air flow at different outdoor temperatures.

Issue: Although use of personally controlled operable windows can improve satisfaction with the indoor air quality and thermal comfort, it may also have negative aspects if outdoor air is polluted or if outdoor weather is very hot or cold.[1–3] In cold weather, large openings in windows near occupants can lead to unpleasant draft.

Solutions: Windows which can be opened in multiple modes may provide thermal comfort over a variety of weather conditions. Large openings near the level of the occupants can provide high levels of air exchange and potentially increased air speed and corresponding cooling effect. Small openings near the ceiling allow some air exchange to take place while minimizing the potential for draft, allowing the outdoor air to warm before it reaches the occupants.[4]

Part 1 Provide Windows with Multiple Opening Modes

WELL Certification: 1 Pt | WELL Core: 2 Pt

> **Note:** Projects may only achieve this part if Feature A07 Part 1 is also achieved.

For All Spaces:

Option 1: Window design

Operable windows may be opened according to the following requirements (windows which may be opened in both modes may count for both requirements a and b):

a. At least 70% of operable windows may be opened such that at least half of the opening is not more than 5.9 ft(1.8 m) above the finished floor and opening is at least 1 ft(0.3 m) in the smallest dimension. At least one such window is present in each room with operable windows.

b. If project is equipped with heating, at least 30% of operable windows may be opened such that entirety of opening is at least 5.9 ft(1.8 m) above the finished floor (preferably as close to the ceiling as possible).[5] At least one such window is present in each room with operable windows.

c. Controls for window operation are positioned not more than 5.6 ft(1.7 m) above the finished floor.

Option 2: Window operation

Instructions for window operation are provided through signage or other communications to regular building occupants to indicate the following:

a. Windows with low openings are to be used during mild and/or warm weather.

b. Windows are not to be opened when mechanical cooling is in operation (not required if no mechanical cooling is present or if mechanical cooling system is configured to disengage automatically when windows are open).

c. Windows with high openings (if present) are to be used in cold weather.

> **Note:** All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

> **WELL Core Guidance:** Meet the requirements in the whole building.

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T09 **B** OUTDOOR THERMAL COMFORT | O

WELL Certification: 3 Pt | WELL Core: 6 Pt

Intent: Address the thermal comfort needs of project occupants in the exterior spaces of the project.

Summary: This WELL feature requires projects to design outdoor spaces to avoid excessive wind and manage elevated temperatures through shading or other strategies.

Issue: As communities expand, development takes the place of natural features of the landscape. By replacing open spaces and vegetation with structures built of materials that retain heat, a phenomenon known as the urban heat island has developed in the urban landscape.[1,2] The most prominent feature of an urban heat island is a sustained elevated temperature when compared to the immediately surrounding suburban or undeveloped areas.[3] This can lead to adverse health outcomes such as heat-related illness, fatigue, increased breathing and increased heart rate.[1,4] In addition, high-rise buildings also can concentrate prevailing winds to higher speeds that result in pedestrian discomfort and dangerous conditions.[5]

Solutions: Various strategies can be used to mitigate urban heat island effects and improve outdoor thermal comfort, including adding vegetation, providing shading structures, increasing reflectance of building materials and introducing water features.[6] The use of trees or vegetation facilitates evapotranspiration and provides shade, contributing to lower surface and air temperatures.[1] Co-benefits of introducing urban vegetation and green spaces include improved air quality, water quality (often via improved stormwater management) and savings in energy.[7] Shelter canopies address solar radiation and provide relief to thermal stress in extreme temperatures. A shaded surface can be up to 25 °C [45 °F] cooler than the peak temperature of a nearby unshaded surface.[7] Reducing surface temperatures of sidewalks, roadways and parking lots can be effectively achieved through a mixture of shading and high-albedo paving materials.[8–10] Finally, water bodies can have a positive effect on microclimates in urban areas by moderating extreme temperatures. Small water bodies such as fountains, pools and ponds can regulate temperature fluctuations and help improve thermal comfort during days of extreme heat.[11,12] Studies suggest that temperatures around and downwind of water bodies can be 1–2°C [2–4°F] lower compared to surrounding areas.[12] Computational fluid dynamics programs and other modeling tools can be used to predict the thermal conditions and likelihood of excessive wind and the effectiveness of countermeasures.[5,13]

Part 1 Manage Outdoor Heat

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Outdoor shading

The following areas (if present) are shaded for more than half of daylight hours each day by tree canopies, awnings, or other structures:

a. At least 50% of pedestrian pathways and building entrances.
b. At least 25% of parking spaces (if present).
c. Between 25% and 75% of all plazas, seating areas and other outdoor areas of congregation.

> **Note:** All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

OR

Option 2: Temperature modeling

For pedestrian pathways and building entrances, parking spaces, and plazas, seating areas and other outdoor areas of congregation, project provides the following:

a. Highest expected measure of thermal perception for each month (e.g., highest Physiologically Equivalent Temperature, highest Universal Thermal Climate Index).
b. If the highest measure of thermal perception is associated with "moderate" (or more severe) heat stress, a list of countermeasures within at least two of the following categories and the expected reduction in heat stress that they provide:
    1. Landscaping and greenery.
    2. Manufactured shading systems (e.g., canopies).

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3. Reflectance of manufactured surfaces (e.g., sidewalks, rooftops).
4. Water features (e.g., ponds, fountains).

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

Note: Interior projects may achieve this part if the grounds of the base building meet the requirements, even if they are outside of the interior project boundary.

WELL Core Guidance: Meet the requirements in the whole building.

Part 2 Avoid Excessive Wind

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

A computational fluid dynamic model of the building and any adjacent buildings that takes into account at least one day per season (i.e., per quarter) demonstrates the following:

a. Winds are not expected to exceed 11 mph(5 m/s) for more than 5% of hours in the year in seating areas or 10% of hours on paths and parking lots.[14]
b. Winds are not expected to exceed 33 mph(15 m/s) on paths, parking lots or seating areas for more than 0.05% of hours in the year.[14]

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

Note: Interior projects may achieve this part if the grounds of the base building meet the requirements, even if they are outside of the interior project boundary.

WELL Core Guidance: Meet the requirements in the whole building.

Part 3 Support Outdoor Nature Access

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Project achieves the following features:

a. Feature T09β Outdoor Thermal Comfort, Part 1 or Part 2.
b. Feature M09, Part 2: Provide Nature Access Outdoors.

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet the requirements in the whole building.

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APPENDIX T1:

Surveys may be administered via paper-based surveys distributed to occupants or through a digital survey such as a website or mobile application. It is recommended that surveys are administered during mid-morning or mid-afternoon, at least 30 minutes after arrival or after a lunch break.

Survey Questionnaire:

Please answer the following questions regarding your general thermal experience during the current heating/cooling season.

1. Please rate your satisfaction level with the thermal environment in this space:

- ☐ Very Dissatisfied
- ☐ Dissatisfied
- ☐ Slightly Dissatisfied
- ☐ Neutral
- ☐ Slightly Satisfied
- ☐ Satisfied
- ☐ Very Satisfied

2. Would you prefer this area to be:

- ☐ Cooler
- ☐ Slightly Cooler
- ☐ No Change Required
- ☐ Slightly Warmer
- ☐ Warmer

If your answer to Question 1 contains the word "Dissatisfied," please answer the following two questions:

3. How do you generally perceive the thermal environment in this area:

- ☐ Cold
- ☐ Cool
- ☐ Slightly Cool
- ☐ Neutral
- ☐ Slightly Warm
- ☐ Warm
- ☐ Hot

4. Please mark the potential source (or sources) of your thermal discomfort:

- ☐ Inappropriate room thermostat setpoint temperature
- ☐ Thermostat setpoint temperature being adjusted by occupants
- ☐ Daily variations in room temperature (such as higher temperature in the afternoons)
- ☐ Occasional variations in room temperature (such as being occasionally warm or cold)
- ☐ Parts of the room being too hot
- ☐ Parts of the room being too cold
- ☐ Humidity level is too high
- ☐ Dry air
- ☐ Air movement is too high
- ☐ Air movement is too low

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☐ Hot/cold air coming from windows

☐ Hot/cold walls

☐ Solar radiation

☐ Local thermal discomfort (part/parts of the body being cold or hot)

☐ Heat from equipment and appliances

☐ Strict dress code

☐ Hot/cold furniture surfaces

☐ Furniture causing hot/cold thermal discomfort or sweating

☐ Others _____

Example of Result Analysis:

The Percentage of Satisfaction should be reported as the percentage of people who are satisfied with the thermal environment of the space as shown in the following equation:

Percentage of Satisfaction = (Number of Satisfied Occupants)/(Number of Surveyed Occupants)•100

Occupants voting for "Neutral," "Slightly Satisfied," "Satisfied," and "Very Satisfied" should be deemed satisfied with the room's thermal environment. Table 1 shows the results from a typical survey and Table 2 depicts a simple example of the survey report. The results of question 2 (and question 3 if applicable) should be submitted as the number of votes for each thermal sensation and preferences condition as specified in Table 2.

Table 1: Results from a Typical Thermal Comfort Satisfaction Survey with 15 Participants

Question 1	Question 2	Question 3	Question 4	
Subject 1	Very Satisfied	No Change		
Subject 2	Satisfied	Slightly Cooler		
Subject 3	Slightly Dissatisfied	Warmer	Cold	Parts of the room being too cold
Subject 4	Slightly Dissatisfied	Slightly Warmer	Cool	Hot/Cold air coming from windows
Subject 5	Satisfied	No Change		
Subject 6	Very Satisfied	No Change		
Subject 7	Neutral	Slightly Warmer		
Subject 8	Very Satisfied	No Change		
Subject 9	Dissatisfied	Warmer	Slightly Cool	Inappropriate room thermostat setpoint temperature
Subject 10	Slightly Satisfied	Slightly Cooler		
Subject 11	Neutral	Slightly Warmer	Slightly Cool	Hot/Cold air coming from windows
Subject 12	Slightly Satisfied	Slightly Warmer		
Subject 13	Very Satisfied	No Change		
Subject 14	Slightly Satisfied	Slightly Warmer		
Subject 15	Satisfied	No Change		

Table 2: A typical Thermal Comfort Satisfaction Survey Report

1. Please rate your satisfaction level with the temperature in this room:						
Considered Dissatisfied				Considered Satisfied		
Very Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfied	Very Satisfied
0	1	2	2	3	3	4

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Percentage of Occupant Satisfaction:						
80%						
2. Would you prefer this area to be (based on the number of votes):						
Cooler		Slightly Cooler	No Change	Slightly Warmer	Warmer	
0		2	6	5	2	
3. How do you generally perceive the thermal environment in this area (based on the number of votes):						
Cold	Cool	Slightly Cool	Neutral	Slightly warm	Warm	Hot
1	1	2	0	0	0	0

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SOUND

The WELL Sound concept aims to bolster occupant health and well-being through the identification and mitigation of acoustical comfort parameters that shape occupant experiences in the built environment.

The acoustical comfort of a space can be quantified by the overall level of satisfaction of an occupant in a given environment.[1,2] The word "sound" itself is generally defined as the human response to mechanical vibrations through a medium, such as air. By this definition, human perception of sound is paramount in shaping a sonic environment.

Only in recent years has it been determined that exposure to noise sources, such as traffic and transportation have been shown to hinder the health and well-being of people in a number of different ways.[3,4] For instance, the effects of exterior noise from transportation or industrial sources have been linked to sleep disturbance, hypertension and the reduction of mental arithmetic skills in school-aged children.[5–10] In one study taken from a sample size of 4,115 participants, it was found that the risk for myocardial infarction was elevated in men from road traffic noise at night and in women by air traffic noise at night.[11] A number of studies have also indicated that internally generated noise is a major cause of complaint and ultimately results in occupant dissatisfaction.[1,12–15]

Sound within an enclosed space from sources, such as HVAC equipment, appliances and other occupants has been shown to hinder productivity, focus, memory retention and mental arithmetic in school children, university students and workplace occupants.[9,13,14,16–19] In addition to airborne noise sources, impact of noise from adjacent activity, such as footfall, exercise or mechanical equipment vibration can create uncomfortable environments for occupants located nearby.[16,20] Another common acoustical issue is lack of privacy within and between enclosed spaces. For instance, research has indicated that occupants are generally dissatisfied when conversations can readily transmit between rooms or across an open office, thus hindering confidentiality or creating a distraction from tasks.[21] Inappropriate reverberation times and background noise levels in a space can impede speech intelligibility and cause strain for occupants who may possess hearing impairments.[22–25] Speech intelligibility is also a crucial element in educational facilities, where information is being presented to large audiences and aural comprehension is vital for memory retention and task completion.[26]

With the rise in hearing impairments and various other health concerns as a result of over-exposure to noise, designing a single space to meet the acoustical comfort needs of every individual is challenging. However, existing research into the effects of best-practice acoustical design within a space suggests that a holistic approach to addressing the issue of acoustical comfort in the built environment is achievable.[14,16,27] The planning and commissioning of an isolated and balanced HVAC system provides a firm baseline for the anticipated background noise level in a given enclosure.[16] With the fortification of façade elements, exterior noise intrusion can be subdued, much to the benefit of occupant comfort, health and productivity.[5,7,28–33] Adding mass and glazing to partition elements, sealing gaps at connections and doors and providing airspace between enclosed spaces bolsters sound privacy and increases occupant comfort.[32,34,35] Replacing areas of hard surfaces in a space with absorptive materials can reduce reflected sound energy and better facilitate acoustical privacy or, conversely, improve speech projection.[22,36–38] Consistent background noise levels can be introduced into a space using a sound masking system, thus improving the signal-to-noise ratio in favor of acoustical privacy between occupants.[15]

The WELL Sound concept aims to provide a comprehensive and holistic approach to addressing the concerns of acoustical comfort through research-based design considerations that buildings can accommodate for the purposes of improving occupant health and well-being.

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S01 SOUND MAPPING | P

Intent: Incorporate strategic planning required to prevent issues of acoustic disturbance from various sources of noise.

Summary: This WELL feature requires projects to strategize an acoustical plan that identifies sources of noise that can negatively impact interior spaces.

Issue: Architectural trends, such as open workspaces, lightweight construction and exposed finishes or HVAC foster acoustically uncomfortable environments.[1–4] When noise from internal or external sources is increased in a space, occupants have been found to be easily distracted, less productive and susceptible to burnout.[5–9] In office environments, employees care about privacy and collaboration.[8,10] In one study from the United Kingdom, 99% of employees reported that their concentration was impaired by poor acoustical comfort in the workplace.[7] Similar conditions are reported in workplaces worldwide.[5,8,11–13] Some reports have shown that occupants are less likely to help others under high noise conditions, reducing collaboration in the workplace.[6]

Solutions: To address noise, floor plans should be designed with intent and use in mind.[14] For example, a typical office can be categorized into four key types of programming: spaces for concentration, collaboration, socialization and learning.[15] Location is important, since noise from social or collaborative spaces impacts spaces intended for concentration or learning.[15,16] This approach can be implemented in any space type that incorporates spaces of socialization and recreation alongside areas for task-centric work or learning.[15] These spaces can then be described as loud, quiet and mixed spaces to better assess the impact of sound on sensitive, quiet locations for concentration, learning or recreation.

Part 1 Label Acoustic Zones

For All Spaces:

The following requirements are met:

a. An annotated document is submitted and made available to occupants showing labeled zones throughout the project floor plan or similar schematic document as follows:
    1. Loud zones: includes areas intended for loud equipment or activities (e.g., mechanical rooms, kitchens, fitness rooms, social spaces, recreational rooms, music rooms)
    2. Quiet zones: includes areas intended for concentration, wellness, rest, study and/or privacy (e.g., restorative spaces, lactation rooms, nap rooms).
    3. Mixed zones: includes areas intended for learning, collaboration and/or presentation (e.g., auditoriums, classrooms, breakout spaces).
    4. Circulation zones: includes occupiable areas not intended for regular occupancy (e.g., hallways, egress, atria, stairs, lobbies).
b. If Loud zones directly border Quiet zones, projects provide a plan for reprogramming or mitigating sound transmission between Loud zones and Quiet zones.

> **WELL Core Guidance:** Meet these requirements in the whole building, based on any knowledge of anticipated uses.

Part 2 Provide Acoustic Design Plan

For All Spaces:

The project provides one of the following:

a. A plan developed by the project team and/or project owner that outlines acoustical solutions and a timeline for implementation with a focus on managing acoustical comfort, background noise, speech privacy, reverberation time and/or impact noise within the project boundary.

b. A detailed report from a professional in acoustics that describes existing conditions, recommended solutions and measurement results with a focus on managing background noise, speech privacy, reverberation time and/or impact noise within the project boundary. These measurements are not required to adhere to the Performance Verification Guidebook requirements for on-site testing.

> **WELL Core Guidance:**
> Meet these requirements in the whole building, based on any knowledge of anticipated uses.

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S02 MAXIMUM NOISE LEVELS | O

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

Intent: Achieve desired ambient noise levels such that HVAC, exterior noise intrusion or other noise sources do not impact occupant health and well-being.

Summary: This WELL feature prescribes maximum thresholds for ambient background noise that correspond to optimal levels of interior and exterior noise exposure.

Issue: All spaces have some degree of ambient background noise from HVAC equipment, exterior sources (e.g., traffic, outdoor equipment, pedestrians) or other building services. When the sum of these noise sources exceeds comfortable levels, the space may not function as intended. For instance, elevated levels of background noise can impact the perception of public address systems and diminish the perception of spoken word, which reduces critical listening ability and task performance.[1–6] Studies indicate that employees are unable to habituate to noise in office environments over time and office noise, with or without speech, can create stress and disrupt performance on more complex cognitive tasks (e.g., memory of prose, mental arithmetic).[7–11] Studies have shown that exposure to traffic noise can lead to increased risk of cardiovascular system issues, diabetes, hypertension, stroke, depression and high blood pressure.[12–17] For children, chronic aircraft noise exposure impairs reading comprehension, mental arithmetic and proofreading.[5,18–21]

Solutions: Interior noise sources can be controlled by selecting HVAC equipment with lower sound ratings and by designing the system to reduce sound within ducts.[22] Exterior noise can be controlled by providing sound reduction at the building façade, windows and any exterior penetrations.[23] In both cases, these sound sources are easier to control when considered at the earliest possible stages of design.[24–26]

Part 1 Limit Background Noise Levels

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

For All Spaces except Dwelling Units, Commercial Kitchen Spaces & Industrial:

> **Note:** Category 1 - Areas for conferencing, learning or speakingCategory 2 - Enclosed areas for concentrationCategory 3 - Open areas for concentration, spaces with PA systems, and areas for dining.

The following requirements are met:

a. Background noise levels are measured over a period of five minutes and average sound pressure levels do not exceed the following thresholds, as applicable:

Sound Pressure Level (SPL)		Category 3	Category 2	Category 1	Points
Average SPL (Leq)	dBA	45	40	35	3(1.5)
	dBC	65	60	55	
Max SPL (LMax)	dBA	55	50	45	
	dBC	75	70	65	
Average SPL (Leq)	dBA	50	45	40	1(0.5)
	dBC	70	65	60	
Max SPL (LMax)	dBA	60	55	50	
	dBC	80	75	70	

For Dwelling Units:

The following requirements are met:

a. Average background noise levels in bedrooms, when measured over a 12-hour minimum time period (which must include the hours of 10 pm to 7 am), do not exceed 35 dBA (Leq).[27]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. Consider lobbies, hallways and corridors within non-

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leased spaces as Category 3. To earn an additional point, also meet Category 3 levels in leased spaces.

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S03 SOUND BARRIERS | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Increase the level of sound isolation and speech privacy between enclosed spaces.

Summary: This WELL feature requires that walls and doors meet a minimum degree of acoustical separation to provide adequate sound isolation and improve speech privacy.

Issue: Sound that transmits from one room to another through walls or doors can be distracting or annoying and also disturb sleep.[1–5] There is evidence that links noise annoyance in multi-story housing to poor mental health and perceived stress in residents.[6,7] Speech privacy is also reduced when background sound in receiving rooms is lower as part of the room's intent (e.g., bedroom, restorative space, classroom).[1,8] For walls, lightweight construction, glass and demountable partitions are typical in modern design and offer minimum acoustic separation and speech privacy, especially when wall construction is not uniform.[9–11]

Solutions: Sound transmits through walls directly and around the construction by what is known as flanking. Walls with high sound transmission class ratings (STC) will provide sound isolation, only when the wall is constructed to reduce flanking at points where the wall connects to other building elements. Windows, glass fins or other penetrations diminish performance and should be used sparingly. Doors also reduce performance of walls but can be fitted with gaskets and seals to reduce sound transmission, when the door is closed. Rooms that require high speech privacy can use sound masking systems, in addition to high-performing walls to increase privacy.[8]

Part 1 Design for Sound Isolation at Walls and Doors

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

The following requirements are met:

a. Interior walls meet the following sound transmission class (STC) or weighted sound reduction (Rw) values. If an interior wall meets multiple categories listed, use the highest (i.e., more stringent) STC/Rw value listed.

Interior Wall Type	Minimum STC or Rw
Between Loud zones and other occupiable spaces.	60
Between areas for conferencing, learning or sleeping and other regularly occupied spaces.	55
Between adjacent Quiet zones.	50
Between rooms for concentration and other regularly occupied spaces.	45
Between Circulation zones and regularly occupied spaces.	40

b. Doors that connect two occupiable rooms and doors to mechanical equipment rooms have a non-hollow core, minimum STC/Rw of 30 and seals at the head, jamb and base.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout. Demising walls that separate tenant spaces from common areas or other tenant spaces should use the "Loud zones and other occupiable spaces" category.

Part 2 Achieve Sound Isolation at Walls

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Noise isolation class

For walls that separate regularly occupied spaces the following requirements are met:

a. The project meets the following minimum Noise Isolation Class (NIC) or Weighted Difference Level (Dw) for each wall type, as applicable. If an interior wall meets multiple categories listed, use the highest NIC/Dw value listed.

Interior Wall Type	Minimum NIC or

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	Dw
Between Loud zones and other occupiable spaces.	55
Between areas for conferencing, learning or sleep and other regularly occupied spaces.	50
Between adjacent Quiet zones.	45
Between rooms for concentration and other regularly occupied spaces.	40
Between Circulation zones and regularly occupied spaces.	35

OR

Option 2: Speech privacy

For walls that separate regularly occupied spaces the following requirements are met:

a. The sum of the measured Noise Isolation Class (NIC) or Weighted Difference Level (Dw) combined with the Noise Criteria Rating (NC) or A-weighted Sound Pressure Level (LAeq) within a room achieves the following minimum values, as applicable. If an interior wall meets multiple categories listed, use the highest value listed.

Source Room	Receiver Room	Minimum NIC + NC or Dw + LAeq
Enclosed Loud zones	Any Open areas for concentration or Circulation zones	80
	All other occupiable areas	85
Enclosed areas for conferencing, learning or sleep	Any Open areas for concentration or Circulation zones	75
	Enclosed Quiet zones	80
	Enclosed areas for conferencing, learning or sleep	85
Enclosed Quiet zones	Any Open areas for concentration or Circulation zones	70
	Enclosed Quiet zones (except offices)	75
	Enclosed offices or areas for conferencing, learning or sleep	80
Any other occupiable space	Enclosed Quiet zones	75

WELL Core Guidance: Meet these requirements for the extent of developer buildout. Demising walls that separate tenant spaces from common areas or other tenant spaces should use the "Enclosed Loud zones" and "All other occupiable spaces" threshold.

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S04 REVERBERATION TIME | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Design spaces in accordance with comfortable reverberation times that support speech intelligibility, vocal effort and are conducive to concentration.

Summary: This WELL feature requires that steps be taken to address acoustical comfort, by controlling reverberation time based on room functionality.

Issue: Reverberation time is the length of time taken for a sound to decay by 60 dB from an initial impulse level. The length of reverberation time is a function of room size, surface area and sound absorbing properties of surface finishes. Spaces with longer reverberation times may be larger in volume with hard surfaces that reflect sound. Spaces with shorter reverberation may be smaller with softer surfaces that absorb sound. Spaces with high reverberation may have increased ambient noise levels and reduce speech intelligibility (e.g., public address, speech reinforcement and unamplified speech). Studies have shown that high reverberation times in classrooms increase auditory workload in students and reduce cognition, memory retention and concentration.[1–4] Similarly, studies have shown that high reverberation reduces speech intelligibility among hard of hearing and non-native speaking populations.[5–8]

Solutions: Reverberation time can be controlled by adding absorptive surface finishes at ceilings, walls and furniture.[9–11] Projects that can alter room geometry can change layouts and room dimensions to support optimal reverberation times, as needed. Reducing reflective surfaces, such as glass, drywall, stone or similar, will also reduce reflected sound energy, which increases reverberation time. Reducing reverberation time also allows audio equipment for telecommunication/AV, speech reinforcement or public address to operate with higher speech intelligibility performance.[5,12–14]

Part 1 Achieve Reverberation Time Thresholds

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Reverberation time, design

For projects in which the space types listed in the table cumulatively make up at least 10% of occupiable project area, the following requirements are met:

a.

Space Type	Space Volume, v (cubic meters)	Reverberation Time, t (seconds)
Areas for learning and conferencing	v < 10,000 ft^3(280 m^3)	$t \leq 0.6$[10]
	10,000 ft^3(280 m^3) ≤ v ≤ 20,000 ft^3(570 m^3)	$0.5 \leq t \leq 0.8$[9]
	v > 20,000 ft^3(570 m^3)	$0.6 \leq t \leq 1.0$[9]
Areas for speech	N/A	$0.8 \leq t \leq 1.0$[9]
Areas for dining Regularly occupied areas with public address systems	N/A	$t \leq 1.0$[5]
Areas for fitness	v < 10,000 ft^3(280m^3)	$0.7 \leq t \leq 0.8$[9]
	10,000 ft^3(280 m^3) ≤ v ≤ 20,000 ft^3(570 m^3)	$0.8 \leq t \leq 1.1$[9]
	v > 20,000 ft^3(570 m^3)	$1.0 \leq t \leq 1.8$[9]
Areas for music rehearsal	v < 10,000 ft^3(280 m^3)	$t \leq 1.1$[9]
	10,000 ft^3(280 m^3) ≤ v ≤ 20,000 ft^3(570 m^3)	$1.0 \leq t \leq 1.4$[9]

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OR

Option 2: Reverberation time, performance

For projects in which the space types listed in the table cumulatively make up at least 10% of occupiable project area, the following requirements are met:

a.

Space Type	Space Volume, v (cubic meters)	Reverberation Time, t (seconds)
Areas for learning and conferencing	$v < 10{,}000\ ft^3 (280\ m^3)$	$t \leq 0.6^{10}$
	$10{,}000\ ft^3 (280\ m^3) \leq v \leq 20{,}000\ ft^3 (570\ m^3)$	$0.5 \leq t \leq 0.8^9$
	$v > 20{,}000\ ft^3 (570\ m^3)$	$0.6 \leq t \leq 1.0^9$
Areas for speech	N/A	$0.8 \leq t \leq 1.0^9$
Areas for dining Regularly occupied areas with public address systems	N/A	$t \leq 1.0^5$
Areas for fitness	$v < 10{,}000\ ft^3 (280\ m^3)$	$0.7 \leq t \leq 0.8^9$
	$10{,}000\ ft^3 (280\ m^3) \leq v \leq 20{,}000\ ft^3 (570\ m^3)$	$0.8 \leq t \leq 1.1^9$
	$v > 20{,}000\ ft^3 (570\ m^3)$	$1.0 \leq t \leq 1.8^9$
Areas for music rehearsal	$v < 10{,}000\ ft^3 (280\ m^3)$	$t \leq 1.1^9$
	$10{,}000\ ft^3 (280\ m^3) \leq v \leq 20{,}000\ ft^3 (570\ m^3)$	$1.0 \leq t \leq 1.4^9$

WELL Core Guidance: Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces.

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S05 SOUND REDUCING SURFACES | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Design spaces with sound reducing surfaces to minimize the buildup of speech or other unwanted sound.

Summary: This WELL feature requires the use of acoustic materials that absorb and/or block sound to support concentration and reduce reverberation.

Issue: Increases in reverberation are commonly caused by lack of acoustical absorption.[1] When spaces are designed with hard reflective ceilings and walls, perception of noise increases with an increase in ambient, reflected noise that decays in level at a longer rate.[2,3] When open collaborative spaces lack acoustical absorption at ceilings or partial height barriers, workers can become distracted by reflected sound, especially if that speech is perceptible.[3–6] Conversely, in learning environments, reverberation can impair a listener's comprehension of speech due to poor speech intelligibility, especially when listeners are hard of hearing, expending a greater auditory workload to process speech resulting in reduced task performance.[7–12] In rooms where teleconferencing or audio equipment introduces amplified sound, spaces without adequate acoustical treatment are subject to higher functioning background noise levels, which may be heard in neighboring spaces.[1,13–15] Lack of reflected sound control in spaces for conferencing can impact the quality of speech intelligibility over teleconferencing equipment.

Solutions: Providing acoustical treatment that significantly reduces sound across human speech frequencies can greatly reduce unwanted buildup of reflected sound.[1] Ceilings typically provide the greatest area of coverage where highly absorptive materials can offer the best performance in reducing reverberation and controlling speech intelligibility and occupied noise levels.[3,16,17] Wall treatment can reduce reflections that impact performance of speech intelligibility with teleconferencing equipment.[1]

Part 1 Implement Sound Reducing Surfaces

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

For projects in which the space types listed in the table cumulatively make up at least 10% of occupiable project area, the following requirements are met:

a.

Space Type	Metric	1 Point(0.5 Points)	2 Points(1 Point)
Open workspaces	Minimum NRC/aw	0.75 for at least 75% of available ceiling area	0.90 for all available ceiling area[1,18]
	Minimum furniture height and NRC/aw	N/A	Partial height barriers with a minimum height of 4 ft(1.2 m) above finished floor and a minimum NRC/aw value of 0.70 between all opposing workstations[1]
Areas for conferencing and learning	Minimum NRC/aw at ceilings	0.75 for at least 50% of available ceiling area	0.90 for all available ceiling area
	Minimum NRC/aw at walls	0.75 on at least 25% of two walls	0.80 on at least 25% of two perpendicular walls
Areas for dining	Minimum NRC/aw at ceilings	0.75 on at least 50% of available ceiling area	0.90 for all available ceiling area

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces.

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S06 MINIMUM BACKGROUND SOUND | O

WELL Certification: 2 Pt | WELL Core: 4 Pt

Intent: Increase acoustical privacy within and between occupied spaces.

Summary: This WELL feature requires the use of dedicated artificial sound to uniformly increase speech privacy between occupied spaces.

Issue: Speech privacy can be described as the signal-to-noise ratio, or sound blocking and sound cover, of perceptible speech reaching a listener.[1] Ambient background sound, which can include artificial sound sources, can increase speech privacy to comfortable levels.[2,3] However, ambient background noise provided by HVAC systems alone is shown to fluctuate by zone and by as much as 15 dBA or more in a given year.[4] Some HVAC systems, like chilled beams, offer little to no ambient sound contribution and result in quiet interiors, where speech is readily intelligible and distracting. In offices and patient rooms where speech privacy is critical between regularly occupied spaces, a combination of reliable background sound is needed where partitions do not perform above a minimum STC-30.[5]

Solutions: Consistent background sound can be delivered to a space using an adjustable array of loudspeakers located such that sound is uniformly distributed.[6,7] These systems are programmed to output a sound source similar to the sound of air flowing through HVAC. The sound source is broad-band and designed to elevate ambient background sound level to improve the signal-to-noise ratio and reduce speech perception between enclosed and open environments.[8,9]

Part 1 Provide Minimum Background Sound

WELL Certification: 1 Pt | WELL Core: 2 Pt

For Office Spaces:

The following requirements are met:

a. A sound masking system is installed in open areas with Quiet zones, Circulation zones and enclosed rooms labeled as Quiet zones and produces a 1/3 octave band adjustable output signal and frequency spectrum of 100 Hz to 5 kHz.

b. The sound masking system is commissioned such that the following sound pressure levels are not exceeded:

    1. Open areas with Quiet zones and/or Circulation zones: 48 dBA.
    2. Enclosed rooms labeled as Quiet zones: 42 dBA.

c. The sound masking system is verified by a professional sound masking system installer in accordance with ASTM 1573-18 or equivalent standard.

> **WELL Core Guidance:** To earn this optimization, the requirements should be met in the whole building.

Part 2 Provide Enhanced Speech Reduction

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

The project achieves the following features and parts:

a. Achieve two points in either Feature S03 Part 2 - Achieve Sound Isolation at Walls or Feature S05 Part 1 – Implement Sound Reducing Surfaces.

b. Feature S06 Part 1 – Provide Minimum Background Sound.

> **Note:** Documents submitted for S05 Part 1 during Precertification may be used to meet requirements for S06 Part 2.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn and additional point, also meet these requirements in leased spaces.

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S07 **B** IMPACT NOISE MANAGEMENT | O

WELL Certification: 3 Pt | WELL Core: 5 Pt

Intent: Reduce the level of impact noise radiation by designing resilient floors.

Summary: This WELL feature requires projects to manage background noise levels by demonstrating compliance with impact noise mitigation techniques.

Issue: Sound can transmit between rooms within a building as structure-borne impact noise. This impact noise travels through structures (e.g., walls, floors, columns, piping) as vibrations that are then radiated as airborne noise to a listener.[1] Impact noise typically derives from objects impacting a floor (e.g., footfall, machinery, gym equipment) and can result in workplace distractions, sleep disturbance or disrupted focus.[2,3]

Solutions: The overall construction of a building influences impact noise radiation levels. For example, a building that utilizes a light-weight floor construction (e.g., wood truss, cross-laminated timber, steel frame) generally exhibits higher degrees of impact noise radiation between floors.[4–7] Conversely, buildings constructed with resilient, composite floor-ceiling construction (e.g., thick concrete slab, suspended ceiling, floor with an underlayment) generally exhibit lower degrees of impact noise radiation.[] The performance of floor-ceiling materials can be measured using the following metrics: Impact Insulation Class Rating (IIC), Normalized Impact Sound Rating (NISR) or Weighted Standardized Impact Sound Pressure Level (L_{nTw}).

Part 1 Specify Impact Noise Reducing Flooring

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

The following requirements are met:

a. For the following space types, the floor-ceiling construction meets the following minimum Impact Insulation Class (IIC) ratings with materials tested in accordance with ASTM E492-09, ISO 717.2 or equivalent (L_{nTw} may be used as an equivalent metric and equivalent values may be determined by subtracting the IIC values listed below from 105):

Space Type	Location of Applicable Floor-Ceiling Assembly	Minimum Impact Insulation Class (IIC)[103]
Quiet zones (except areas for concentration)	Above	55
Areas for Fitness (if space is within the project boundary)	Below	50
Enclosed Areas for Concentration and Conferencing	Above	50
Open Areas for Concentration	Above	45
Areas for Retail and Dining (if space is within the project boundary)	Below	45

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

Part 2 Meet Thresholds for Impact Noise Rating

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces:

The following requirements are met:

a. For the following space types, the floor-ceiling construction achieves the following Normalized Impact Sound Ratings (NISR), as measured on-site, in accordance with ASTM E1007-19, ISO 16283 or equivalent, by a

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professional in acoustics (L_{nTw} may be used as an equivalent metric and equivalent values may be determined by subtracting the NISR values listed below from 105):

Space Type	Location of Applicable Floor-Ceiling Assembly	Minimum NISR[1] 1 point(2 points)	Minimum NISR[1] 2 points(3 points)
Quiet zones (except areas for concentration)	Above	52	57
Areas for Fitness (If space is within the project boundary)	Below	47	52
Enclosed Areas for Concentration and Conferencing	Above	47	52
Open Areas for Concentration	Above	42	47
Areas for Retail and Dining (If space is within the project boundary)	Below	42	47

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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S08 **B** ENHANCED AUDIO DEVICES | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Improve speech intelligibility and accessibility by providing dedicated, high-performance audio technology.

Summary: This WELL feature requires projects to implement organizational policies and provide occupants with devices that support enhanced speech intelligibility and bolster hearing accessibility in spaces intended for telecommunicating, instruction and public address.

Issue: The ability for people to comprehend speech is a fundamental consideration of universal design. Reduced or low speech intelligibility can negatively impact occupant satisfaction and well-being, especially for non-native speakers, individuals with hearing loss or neurodiverse populations.[1–9] Audio equipment used for communication can further decrease comprehension of spoken word when installed and used incorrectly.[1,5,10–13] Additionally, increased auditory workload can impact task performance, resulting in a higher risk of misunderstanding, operational errors and accidents.[14] In educational settings, increased vocal effort by teachers to overcome poor intelligibility has been linked to vocal strain, decreased job performance, lower quality of life, higher rates of leave or absence and resignation.[15–20] Improving speech intelligibility can support classroom participation for deaf and hard-of-hearing students, which is linked to improved scores for quality of life, social contact with peers and mental health.[21]

Solutions: Implementing audio systems can improve speech intelligibility for end-users in various environments. These systems include teleconferencing equipment in offices, speech reinforcement systems in classrooms and public address systems.[22,23] To provide the best possible outcomes for users, systems should be commissioned by a professional in audio engineering in order to meet diverse occupant needs and create more accessible spaces.[24–26]

Part 1 Provide Enhanced Speech Intelligibility

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Install & Commission Audio Systems

The following requirements are met, as applicable:

a. Telecommunication and AV systems, which utilize speech enhancement technology (e.g., active digital signal processing, noise cancellation) are provided in all rooms used for conferencing, distance learning or similar remote communications and commissioned by a professional in audio engineering.

b. Public address systems meet the following:

   1. All public address systems are commissioned by a professional in audio engineering in accordance with NFPA 72 (Annex D) or equivalent.[27]
   2. A commissioning report, acoustical model or similar indicates that a minimum STI 0.50 is achieved in at least 50% of regularly occupied acoustically distinguishable spaces (ADS) when measured in accordance with IEC 60268-16 or equivalent.[28]

c. Speech reinforcement systems are installed in at least 80% of classrooms and all spaces for large presentation spaces (e.g., lecture hall, conference center). All speech reinforcement systems are commissioned by a professional in acoustics or audio engineering and a commissioning report indicates that systems are designed to meet audio distribution requirements in accordance with ANSI/ASA S12.60 Part 1 and commissioned in accordance with ANSI/INFOCOMM A102.01:2017 or equivalent.[29,30]

> **Note:** All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 2 Prioritize Audio Devices and Policies

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

The project supports individual acoustical needs through at least three of the following:

a. All audio devices are managed internally by a qualified professional (e.g., IT department, mobile device

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management) and expectations for use are covered in the employee handbook and/or during on-boarding of new staff.[31,32]

b. Eligible employees can request alternative workplace arrangements to meet their individual acoustic comfort needs (e.g., the option to work remotely, different workstation location).[33,34]

c. A minimum of one daily quiet hour is scheduled and signage is used to indicate both the location and intended activities of Quiet and Mixed Zones identified in Feature S01 – Sound Mapping.[35]

d. All eligible employees and distance learners (as applicable) are provided telecommunication accessories upon request which utilize sound enhancement technology (e.g., active digital signal processing, noise-cancellation) at no cost or subsidized by at least 50%.[36]

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WELL Core Guidance: Meet these requirements in non-leased spaces.

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MATERIALS

The WELL Materials concept aims to reduce human exposure, whether direct or through environmental contamination, to chemicals that may impact health during the construction, remodeling, furnishing and operation of buildings.

The chemicals industry is a central part of the global economy and is integral to a number of sectors that have played a major role in improving life expectancy and the quality of life over the past 150 years. However, the health and environmental impacts of most chemicals in circulation, despite their ubiquity, are unknown. Many of the chemicals that were ubiquitously used in the past have been found to be typically toxic, persistent and prone to bioaccumulation. Commonly used in building materials and products, these chemicals have a much longer use phase.

Legacy chemicals, a denomination that includes lead, asbestos, mercury, chromated copper arsenate (CCA) and polychlorinated biphenyls (PCBs), are now largely restricted in manufacture and use. However, they continue to pose dangers not only in older structures but also through their environmental fate.[1-3] For example, lead exposure accounted for an estimate of one million deaths in 2017 and can be considered as a global health priority, even in places where it is regulated.[4,5] Another example of a legacy contaminant is CCA, a biocide formerly used in outdoor wood structures that can leach arsenic and preservative components into the soil where children can be exposed.[6] The WELL Materials concept requires projects to assess the presence of these compounds and take measures to prevent human exposure along with restricting them in new products. In addition, testing, remediation and redevelopment of sites contaminated with these and many other toxic pollutants is encouraged, in order to support environmentally responsible growth and preventing sprawl.[7]

Beyond legacy compounds, other classes of chemicals, such as perfluorinated alkyl compounds (PFCs), orthophthalates, some heavy metals and halogenated flame retardants (HFRs), are often used in products because of their superior performance. However, the health and environmental impacts of many of the compounds in these classes are proven or considered to be deleterious, plus some of them are widely distributed throughout natural environments and as human metabolites.[8-10] The Materials concept promotes a precautionary approach, favoring substitutions of certain materials where replacements are available and do not pose sources of exposure for other chemicals of unknown or increased toxicity.

Chemicals may not be added to but also emitted from products. Volatile organic compounds (VOCs) comprise a large group of chemicals abundant in indoor environments due to various source materials, including insulation, paints, coatings, adhesives, furniture and furnishings, composite wood products and flooring materials,[11] and may significantly affect respiratory health and even increase cancer risks.[11] As this is particularly important for indoor air quality (IAQ) and health, the WELL Materials concept encourages the use of products tested for low VOC emissions.

The WELL Materials concept advances two strategies for selecting building materials and products. One is to increase literacy on materials by promoting ingredient disclosure, whereas the second is to promote the assessment and optimization of product composition in order to minimize impacts to human and environmental health. Both strategies aim to bridge data gaps in the supply chain, supporting innovation in green chemistry and advancing market transformation towards healthier and more sustainable products.

Finally, and because potentially hazardous products are introduced into buildings during their day-to-day operations, the WELL Materials concept promotes the use of low-hazard cleaning products and cleaning practices that reduce impacts in indoor air quality and in the health of those performing these duties.[12] To further promote mitigation of environmental contamination and protection of public health, the WELL Materials concept includes guidelines for the safe management of some types of waste.[13] Finally, the application of Integrated Pest Management (IPM) principles[14,15] and the use of low-hazard pesticides, along with signage and notice of application, further works to protect health.

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X01 MATERIAL RESTRICTIONS | P

Intent: To reduce or eliminate human exposure to building materials known to be hazardous.

Summary: This WELL feature restricts widely known hazardous ingredients in newly installed building materials, specifically asbestos, mercury and lead.

Issue: Historical use of hazardous materials in construction, specifically asbestos, mercury and lead, have presented serious and negative health impacts on humans. Disease caused by exposure to these chemicals, including asbestosis, developmental issues in children[1] and various forms of cancer still affect millions of people.[2] While these compounds have been restricted or banned in buildings in many countries, they still pose as threats in countries that have not enacted the necessary limitations. As a result, exposure to these hazardous materials should be limited and, if possible, eliminated.

Solutions: Asbestos has been fully or partially banned for buildings in most countries and alternatives are widely available. Lead content in materials that may expose humans to its aspiration and ingestion is also restricted in many national regulations.[3] However, products where lead content is minimized or not added can significantly reduce leaching into from pipes into drinking water. Eliminating the use of compact fluorescent light bulbs (CFLs) removes a potential pathway of exposure to mercury.

Part 1 Restrict Asbestos

For All Spaces:

For newly installed or applied products within the project boundary, the following requirement is met:

a. The following product categories do not contain over 1,000 ppm of asbestos by weight or area:
    1. Thermal protection, including all insulation (lagging) applied to pipes, fittings, boilers, tanks and ducts.
    2. Acoustic treatments.
    3. Sheathing.
    4. Roofing and siding.
    5. Fire and smoke protection.
    6. Joint protection.
    7. Plaster and gypsum board.
    8. Ceilings.
    9. Resilient flooring.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 2 Restrict Mercury

For All Spaces:

The following requirements are met:

a. Newly installed fluorescent and sodium lamps, if present, meet one of the following:
    1. RoHS restrictions.[4]
    2. The following specifications:[5]

Fluorescent Lamp	Maximum Mercury Content
Compact, integral ballast	3.5 mg
Compact, no-integral ballast	3.5 mg
T-5, circular	9 mg
T-5, linear	2.5 mg
T-8, eight-foot	10 mg

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T-8, four-foot	3.5 mg
T-8, U-bent	6 mg
High-Pressure Sodium Lamp	**Maximum Mercury Content**
400 W or less	10 mg
Over 400 W	32 mg

b. Newly installed fire alarms, meters, sensors, relays, thermostats and load break switches meet one of the following:

   1. RoHS restrictions.[4]
   2. Products contain no more than 0.1% (1000 ppm) of mercury by weight.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

Part 3 Restrict Lead

For All Spaces:

Option 1: Paints and electronics

The following requirements are met:

a. Newly installed fire alarms, meters, sensors, relays, thermostats and load break switches meet one of the following:

   1. RoHS restrictions.[4]
   2. Products contain no more than 0.01% (100 ppm) of lead by weight.

b. Newly installed paints applied as finishes within the project boundary meet at least one of the following criteria:

   1. Paints have a lead concentration of 100 ppm (0.1%) by weight or below.
   2. Paints have no added lead carbonates and lead sulfates.
   3. Paints are deemed free of lead or with no added lead by an ISO 14024-compliant (Type 1) Ecolabel, or a voluntary third-party certification program recognized by the local government where the project is located.
   4. Paints meet Feature X08: Materials Optimization.

Option 2: Drinking water pipes, fittings and solder

Pipes, fixtures, fittings and solder newly installed or applied within the project boundary intended for drinking water distribution and delivery meet at least one of the following:

a. The product is approved for use with drinking water by a local government authority or by a government-authorized certification body.

b. The product has a weighted wetted average of 0.25% of lead or less, verified by a third party, or is labeled as ANSI/NSF 372-compliant.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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X02 INTERIOR HAZARDOUS MATERIALS MANAGEMENT | P

Intent: Manage risks of human exposure to hazardous materials ubiquitously used in past construction practices.

Summary: This WELL feature requires the application of practices to manage exposure risks of the hazardous building materials asbestos, lead and polychlorinated biphenyls (PCBs).

Issue: Some materials that were commonly used in construction due to their mechanical, chemical or visual properties has shown to be toxic, and are now banned or confined to limited production across the world. However, their ubiquitous presence still haunts our built and natural environments and can cause disease upon exposure. Asbestos, lead and polychlorinated biphenyls (PCBs)-containing materials are emblematic examples. Asbestos, a naturally present, chemically resistant material found in old adhesives, insulation and sheeting is a known toxicant and carcinogen. Exposure to asbestos-containing dusts is the main cause of mesothelioma and responsible of over 200,000 deaths annually.[1] Lead is found in paints for increasing their durability and impermeability. If ingested, absorbed or breathed-in, it accumulates in blood, tissues and bones, potentially disrupting body functions and impairing the intellectual development of children and the unborn during pregnancy.[2] PCBs were used in caulk and electrical equipment, but due to their persistence in the environment, bioaccumulation in foods and carcinogenicity, their production is banned worldwide.[3]

Solutions: Existing buildings must be evaluated for the presence of hazardous materials and consider their removal when technically feasible. If not possible, hazards must be isolated and periodically monitored to prevent human exposure. Generating dust that can become suspended and respirable must be avoided. Any waste generated from construction, or any other onsite activity must be handled appropriately in accordance with best practices.

Part 1 Manage Asbestos Hazards

For All Spaces:

Option 1: Asbestos risk assessment

For existing buildings constructed or last renovated before the enactment of laws banning the installation of asbestos-containing materials, and for buildings located where there is no local asbestos phase-out regulation, one of the following requirements is met:

a. Project for which all asbestos has been removed in a prior renovation demonstrates that occupancy of the space is legally allowed.

b. An investigation of the project space is conducted by an inspector certified under local regulation or a qualified professional with demonstrable experience where no local regulations apply. The investigation must provide the following, at minimum:

    1. A list of locations where presumed asbestos containing materials (PACM) were found.
    2. Confirmation of the presence of asbestos is performed through Polarized Light Microscopy (PLM) or Transmission Electron Microscopy (TEM) testing. The sample number and location follow applicable laws or recommendations of the inspector conducting the assessment. Materials having over 1% of asbestos are considered ACM. If analytical confirmation is not available or possible, all PACM are considered asbestos-containing materials (ACM).

Option 2: Asbestos action plan

If asbestos-containing materials (ACM) were found per the above, an action plan that contains the following is implemented:

a. Notification of any works to relevant authorities and persons living, working or transiting in the vicinity of the building or space.

b. Preventative measures against the formation and spread of asbestos fibers in the air during remedial work.

c. Measures taken for workers' protection during remediation activities, including but not limited to skin and respiratory protection.

d. If ACM are being removed, activities are carried out for proper handling of ACM waste, including: wetting of all removed ACM, care in transportation to prevent crumbling, sealing and leak-tight transportation, proper labeling and final disposal in locations allowed by applicable laws and permits.

e. Post-remediation clearance for occupancy confirmation by testing of fibers in air using phase contrast

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microscopy (PCM) or transmission electron microscopy (TEM) following standards referenced in applicable local laws or, if not available, NIOSH Manual of Analytical Methods (MNAM) Methods 7400 or 7402, GBZ/T192.5-2007, ISO 8672:2014, ISO 10312:2019 or ISO 13794:2019. The number of samples and sampling conditions must meet local regulations and/or conform to ISO 16000-7.

f. If any of the asbestos is managed by methods other than removal, the month and year of follow-up inspection to evaluate the structural integrity of the ACM must be stated and cannot exceed three years from the date of the last inspection.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

Part 2 Manage Lead Paint Hazards

For All Spaces:

Option 1: Identify lead paint hazards

For existing buildings constructed or renovated before the enactment of laws banning lead-containing paints for use in interior walls, one of the following requirements is met:

a. If local laws mandate full removal of lead paint before occupancy of the space, project demonstrates that risk has been addressed by providing relevant legal documentation, such as approved certificates of occupancy or remediation reports submitted to relevant authorities.

b. An on-site investigation of the space to determine the presence of any lead-based hazards in paint, dust and soil is conducted. The investigation must be performed by a certified inspector or a qualified professional where no local regulations apply and address the following:

    1. An inventory of locations of potential sources and sinks of lead-containing materials, where lead-containing paint may be present.
    2. Confirmation of lead hazards through in-situ test results by x-ray fluorescence (XRF) or by laboratory analyses of paint chips[4] and/or surface dusts. Surface dust is considered a hazard if its lead loading is more than 10 µg/ft^2(0.11 mg/m^2) of the collection area if sampled from floors or over 100 µg/ft^2(1.08 mg/m^2) for dust on interior window sills.[5] Paints having over 0.5% of lead by weight or 930 µg/ft^2(10,000 mg/m^2) of applied area and bare soil containing over 400 ppm of lead by weight are also considered lead hazards.[5] Lower thresholds mandated by local regulations prevail for terms of hazard assessment.

Option 2: Lead action plan

If lead is found in the investigation, a certified inspector (or a qualified professional where no local regulations apply) implements an action plan that contains the following:

a. Notification of remediation work to occupants and transient populations in the surrounding spaces, and restriction of access to work areas during remediation.

b. If paints are mechanically removed, measures are taken to minimize the formation and spread of dusts during the remediation process and to ensure adequate respiratory and skin protection for workers.

c. A re-inspection schedule that includes visual assessments and dust testing, if any lead-containing paints are left in place and are subject to stabilization (i.e., painted over with products to prevent chipping or degradation) or enclosure, at least once every three years.

d. Post-remediation clearance, confirming that the lead loading in dust is below the levels deemed hazardous.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

Part 3 Manage Polychlorinated Biphenyl (PCB) Hazards

For All Spaces:

For buildings constructed or last renovated before the institution of any applicable laws banning or restricting PCBs, or buildings undergoing renovation work that disturbs (i.e., partially or fully removing) materials likely to contain PCBs such as caulking, fluorescent light ballasts and capacitors of appliances fabricated before 1980, the following requirements are met:

a. An inspection strategy for assessing PCB-related risks is implemented and contains the following:

    1. Determination of locations where materials potentially containing PCBs may be disturbed.

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2. If caulk is to be disturbed or removed, analysis of the presumably PCB-containing material following protocols mandated by local laws or, in absence of local laws, by any applicable US EPA[6] or ISO testing methods.

b. If PCBs are found in disturbed materials, an action plan is implemented and contains the following:

1. Notification of remedial work to relevant authorities and building occupants.
2. Preventative measures against the spread of PCB-containing dusts and human exposure during remediation activities, including restricting access for those not involved in the work.
3. Protective measures for workers, including chemical-resistant gloves, clothing protection, goggles and respirators.
4. Waste handling that minimizes the spread of contaminated debris and safe disposal of PCB-containing waste in locations allowed by applicable local regulations.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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X03 CCA AND LEAD MANAGEMENT | P

Intent: Mitigate risks of human exposure to chromate copper arsenate (CCA) and lead.

Summary: This WELL feature requires addressing risks associated with human exposure to chromate copper arsenate (CCA) in existing wood structures and lead in soil, playground equipment and artificial turf.

Issue: In the 2000s, the application of CCA (or 'pressure-treated wood') was restricted due to health concerns connecting its presence to arsenic exposure to humans, animals and food crops, and[1] exposure to arsenic is known to cause increased risk of skin, liver, bladder and lung cancers.[2] However, prior to its restriction, CCA was a widely used wood treatment for decades. As a result, CCA presence in our environment still poses as a threat to our health. Additionally, chromates which are catalogued as carcinogenic to humans[3] can be inhaled if CCA-containing wood is ever burnt. Among other existing external hazards is lead, which may be present in paints used on outdoor structures and playgrounds.[4] Lead may also contaminate soils upon chipping, in fibers of artificial turf[5] and in some loose rubber.[6]

Solutions: Identifying and remediating hazards associated with CCA and lead should reduce risk of exposure to and dispersion of contaminants in the environment through leachates. Although not all routes of exposure and bioavailability of lead are fully understood,[6] ingestion and inhalation of lead-containing particles may occur due to contaminated paint or rubber crumbs and, thus, from a precautionary standpoint, testing for lead is recommended.[7]

Part 1 Manage Exterior CCA Hazards

For All Spaces:

For all existing wood structures installed before the enactment of laws banning chromated copper arsenate (CCA) which lie outside the building envelope but within the project boundary where human presence is expected (e.g., wooden decks, fences near walkways, playgrounds and outdoor furniture), the following requirements are met:

a. Identify CCA-containing wood through one of the following:
    1. Inspection of purchase records.
    2. Determination of whether legal bans for CCA apply.
    3. Testing for the presence of arsenic in the wood or the soil bearing the wooden structures.
b. Address CCA-containing woods through one of the following:
    1. Dispose of CCA-containing woods following applicable laws, without incinerating nor wood chipping.
    2. Treatment with penetrating (non-film-forming), oil-based, semi-transparent stains that prevent arsenic leaching on a regular basis as recommended by the manufacturer.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 2 Manage Lead Hazards

For All Spaces:

The project addresses lead hazards through the following:

a. The top 0.6 in(1.5 cm) layer in all existing outdoor bare soil (outside the building envelope, post-construction, not covered by grass, vegetation or other landscaping including mulch covered soil) is tested for lead. Each continuous area of bare soil is sampled at least once. If the lead concentration of any sample surpasses 400 ppm by weight,[8] then the following is performed:
    1. A second set of samples is taken at 6 in(15 cm), 12 in(30 cm), 18 in(45 cm) and 24 in(60 cm) deep.[9]
    2. If these samples are above 400 ppm by weight, soil is replaced with soil from another source to the extent of the deepest sample found above this threshold.
b. Lead in artificial turf fibers is assessed as follows:[5]
    1. If lead concentration of synthetic turf fibers is unknown, test a sample of fibers to determine the lead concentration using an EPA, ISO or locally accepted protocol.
    2. If the total lead concentration of synthetic turf fibers is greater than 136 mg/lb(300 mg/kg), perform dust-wipe testing per EPA, ISO or locally accepted protocol for dust-wipe testing to determine the surface dust-lead loading.
    3. If the wipe-testing results show total lead loadings greater than 40 µg/ft^2(430 µg/m^2), replace with turf

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containing lead concentrations less than 136 mg/lb(300 mg/kg).

c. If loose-fill rubber from recycled tires is present on playgrounds, sporting fields, or other surfaces, the surface is assessed and remediated per the following:
    1. Sample the loose-fill rubber using an EPA, ISO or locally accepted protocol for lead testing and perform lead content analysis.
    2. If the loose rubber results show total lead loadings greater than 136 mg/lb(300 mg/kg) of rubber, replace the loose-fill rubber.
d. Paint applied to existing playground equipment, installed and painted before the enactment of banning laws, is assessed for lead and removed, as necessary, per the guidance below:
    1. Assess the integrity and age of the paint. If the paint is cracked, peeled or chipped collect a sample for laboratory analysis for lead. Follow guidelines and methods described by the World Health Organization[10] or local equivalents for sampling and laboratory analysis.
    2. Remove or encapsulate the paint from the playground equipment if the sample contains lead at a concentration over 90 ppm. Removal duties must be performed by a certified specialist or someone with demonstrable experience where no local regulations apply.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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X04 SITE REMEDIATION | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Promote the safer development of potentially contaminated sites by assessing and mitigating hazards.

Summary: This WELL feature requires site assessment, testing and remediation for the development of contaminated sites.

Issue: Contaminated soil, usually associated with past industrial activities, can leach toxic chemicals into nearby groundwater or surface waters, accumulate in sediments, volatilize and pose hazards to indoor air in buildings on the premises or be carried by wind-borne dust.[1] When left unmanaged, contaminants from such sites can pose risks to those who live and work nearby through inhalation, ingestion or dermal contact.[2] Contamination in these sites, which are known as brownfields,[1] may complicate development if not properly addressed.

Solutions: Site assessment and remediation can reduce risk of exposure to populations that live in proximity to contaminated sites. Cleanup of contaminated sites that can present environmental (e.g. air, water, soil) and human health hazards helps protect the public from associated hazards and encourages environmentally responsible growth,[3] further preserving undeveloped land.

Part 1 Assess and Mitigate Site Hazards

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Environmental site assessment

For project sites used for past or present industrial activities (e.g. hazardous waste storage, fuel station, manufacturing plant, on-site dry cleaners, automotive repair or brownfields), the following is completed:

a. Assessment of potential contamination in soil or underground water from past uses or surrounding conditions using one of the following:
    1. Local applicable regulation for environmental site assessments.
    2. Guidelines provided in the standard ASTM E1527-05 (Phase I site assessments).

Option 2: Monitoring and remediation plan

If the site investigation establishes the potential presence of contaminants, the following are implemented:

a. A sampling strategy to quantify contamination and determine remediation needs following local regulations or through ASTM E1903-97 (Phase II site assessment) guidelines.
b. A sustainable remediation plan before, during and after construction that integrates the following:[3,4]
    1. A risk-based approach to sustainable remediation (risk assessment/risk-benefit analysis).
    2. A tiered approach to assessment and an appraisal of remediation options.
    3. Safe working practices for workers during remediation.
    4. Record keeping of decision-making and assessment processes.
    5. Protocol for engaging stakeholders, including management of the impacts on the community.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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X05 ENHANCED MATERIAL RESTRICTIONS | O

WELL Certification: 2 Pt | WELL Core: 2 Pt

Intent: Minimize the exposure to certain chemicals by limiting their presence in products.

Summary: This WELL feature requires restricting chemicals found in products commonly installed in buildings.

Issue: The materials industry has been able to develop and adapt products to satisfy the needs of the market. However, some newly introduced chemicals that pose to be advantageous from a performance or cost perspective, may be associated with negative health effects. Populations that prove to be the most vulnerable to these chemicals are unborn and young children, as well as pregnant women.[1,2] Chemical classes with compounds suspected or proven to pose health concerns include orthophthalates (common plasticizers), halogenated flame retardants (HFR)[1,3] and other per-fluorinated compounds (PFCs) and heavy metals, in addition to formaldehyde.[4] Common pathways of exposure to these compounds are through inhalation, skin contact or swallowing of dusts, soils or larger particles. Overall, there is a great research gap in assessing the safety of these and many other chemicals,[5] driven both by their ubiquity in the environment, as well as their presence in the human body. For instance, Per- and polyfluoroalkyl substances (PFAS) such as perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) are persisting PFCs in natural environments (including sources of drinking water) and found in humans.[6] Metabolites of orthophthalates are partially metabolized by the body and commonly found in urine.[7]

Solutions: Selecting products that are devoid of or have reduced amount of chemicals associated with health concerns may help to prevent exposure to these compounds. Some organizations have published regulations, guidelines or certifications that restrict or minimize the presence of certain chemicals from these classes.

Part 1 Select Compliant Interior Furnishings

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Furniture, millwork and fixtures

At least 50% by cost of newly installed furniture, millwork and fixtures (minimum 10 distinct products), as defined in Appendix X1, meet one of the following requirements:

a. Textiles (i.e., fabrics including upholstery) and plastics in products contain 100 ppm (0.01%) by weight or less of the below compounds and chemical classes, unless higher amounts are mandated by local codes. For assessing compliance of a product, all pieces of each of the two material categories (textiles, plastics) are grouped together and each material category is assessed independently against the 100 ppm threshold:
    1. Halogenated flame retardants (HFR).
    2. Per- and polyfluoroalkyl substances (PFAS).
    3. Lead.
    4. Cadmium.
    5. Mercury.
b. Do not contain textiles and plastic.

Option 2: Electrical and electronic products

All newly installed electrical and electronic products, as specified in Appendix X1, meet the following requirement:

a. Products are compliant with RoHS restrictions.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 2 Select Compliant Architectural and Interior Products

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

At least 50% by cost of newly installed products under the classes listed below, as defined by Appendix X1 (minimum 10 distinct products), meet the following requirements, unless higher amounts are mandated by local code:

a. Flooring products contain 100 ppm (0.01%) by weight or less of the following:
    1. Halogenated flame retardants (HFR).

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2. Per- and polyfluoroalkyl substances (PFAS).
3. Orthophthalates.

b. Insulation products, including thermal and acoustic insulation in walls, ceilings, ducts, tubes and pipes, contain 100 ppm (0.01%) by weight or less of halogenated flame retardants (HFR).

c. Ceiling and wall panels contain 100 ppm (0.01%) by weight or less of the following:

1. Halogenated flame retardants (HFR).
2. Orthophthalates.

d. Plastic plumbing contains 100 ppm (0.01%) by weight or less of orthophthalates.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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X06 VOC RESTRICTIONS | O

WELL Certification: 4 Pt | WELL Core: 4 Pt

Intent: Minimize the impact of volatile organic compounds (VOCs) emitted by products on indoor air quality.

Summary: This WELL feature requires adherence to emission thresholds for materials placed inside the building envelope.

Issue: VOCs encompass a wide group of volatile substances of both natural and artificial origins which have a wide range of health effects from nose, eye and throat irritation, headaches and nausea to liver, kidney and central nervous system damage.[1] Furthermore, some select VOCs are known or suspected carcinogens.[1] While these compounds are present outside, buildings are a net source due to human activities, cleaning practices and emissions from materials.[2] Newly installed furniture, insulation, flooring as well as wet-applied products such as paints, adhesives, sealants and coatings can significantly introduce VOCs into living spaces[3] for approximately one to two years,[4] and sometimes causing elevated concentrations in enclosed spaces like wardrobes.[5] These compounds can react in many ways to form new compounds and respirable particles, even seemingly impacting air pollution outdoors.[2]

Solutions: The selection of products with low or no VOC emissions is instrumental to prevent worsening in air quality. When VOCs are emitted, careful material selection in newly built spaces has been shown to accelerate VOCs reduction (i.e. off-gassing) to background levels.[6] Reducing level of toxic compound emission will also help to reduce the demands of ventilation.[4] Off-gassed products (e.g., reused furniture) also limit further emissions.

Part 1 Limit VOCs from Wet-Applied Products

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

Newly installed interior wet-applied paints, coatings, adhesives, sealants and finished poured floorings used inside the building envelope (minimum 10 distinct products or applied to at least 10% of project area) meet the following:

a. All products are tested by a third-party laboratory to meet testing methods and thresholds established in one of the following standards and/or regulations for VOC content:
    1. SCAQMD Rule 1168 (Adhesives and Sealants, 2017).
    2. GB 33372-2020 (Adhesives).
    3. 2019 CARB SCM for Architectural Coatings.[7]
    4. EU Ecolabel for indoor and outdoor paints and varnishes.
    5. HJ 2537-2014 (Paints).
    6. Any other standard listed in the 'VOC content evaluation' section of the 'Low-Emitting Materials' credit of the LEED v4.1 standard.[8]
b. At least 75% of products (by surface area or volume) are tested by a third-party laboratory to meet testing methods and thresholds established in one of the following standards and/or regulations for VOC emissions:
    1. California Department of Public Health (CDPH) Standard Method v1.2.
    2. AgBB.[9]
    3. European Union LCI VOC thresholds[10] following EN 16516-1:2018 testing methods.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 2 Restrict VOC Emissions from Furniture, Architectural and Interior Products

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

Products within one or more categories and corresponding thresholds in Table 1 meet one of the following compliance requirements, earning points as shown in Table 2:Table 1:

Product Category (from Appendix X1)	Threshold for Compliance
Flooring	90% of cost or surface area
Furniture, millwork and fixtures	75% by cost

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Insulation, ceiling and wall panels	75% by cost or surface area

Table 2:

Achievement	Points
One compliant product category	1
At least two compliant product categories	2

a. Tested per methods and VOC emission thresholds established in one of the following:
    1. California Department of Public Health (CDPH) Standard Method v1.2.
    2. AgBB.[9]
    3. European Union LCI VOC thresholds[10] following EN 16516-1:2018 testing methods.
    4. ANSI/BIFMA e3-2014, sections 7.6.1 or 7.6.2 (Furniture).
b. Made exclusively with one or a combination of (without organic additives): metal, untreated wood, glass, ceramic or stone.
c. If custom-made or refurbished, wet-applied and wood-based materials used in fabrication or refurbishing meet the following:
    1. All paints, coatings, sealants and adhesives applied to the product are verified as low-VOC emitting by one of the applicable standards listed in Part 1.
    2. All composite wood panels, including medium-density fiberboard, plywood and particle wood panels meet the 'Formaldehyde emissions evaluation' criterium of the 'Low-Emitting Materials' credit of the LEED v4.1 standard,[8] or meet one of the following: US EPA TSCA Title VI, Europe E1, Japan Four-star.
d. Installed for at least 6 months before project registration or manufactured and unmodified at least one year before project registration.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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X07 MATERIALS TRANSPARENCY | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Promote material transparency across building material and product supply chain.

Summary: This WELL feature requires the compilation and availability of product descriptions, with ingredients evaluated and disclosed through transparency programs.

Issue: The global supply chain for material production is multi-tiered and complex, and technical and chemical knowledge throughout the supply chain varies greatly. As a result, there is a lack of robust data and knowledge about different chemicals and their effects on human health.[1] Such limitations in awareness prevents the adoption and use of chemicals believed to be safer in the industry.[2] Additionally, building and construction materials are not required to have complete ingredient lists, which makes it difficult to make fully informed choices when selecting safer products.

Solutions: Growing scientific and public concern over chemical exposure has prompted the introduction of a number of disclosure tools to help differentiate safer ingredients and products. Labels that promote material ingredient disclosure encourage supply chain transparency and work to bridge the information gap between manufacturers and users. Further, promoting awareness of and education on material ingredient content through product labeling can help enable informed decision making.

Part 1 Select Products with Disclosed Ingredients

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

For at least 50% by count or 25 distinct, permanently installed products (including flooring, insulation, wet-applied products, ceiling and wall assemblies and systems) and furniture, ingredients are disclosed by the manufacturer, a disclosure organization or a third party through one of the following:

a. A Declare label, operated by the International Living Future Institute.[3]
b. A Health Product Declaration (HPD) published in the HPD Public Repository, operated by the Health Product Declaration Collaborative.[4]
c. A Cradle-to-Cradle Certified™ product with a Gold or Platinum level in the Material Health Category, or a product with a Gold or Platinum Material Health Certificate from the Cradle to Cradle Products Innovation Institute.[5]
d. A Product Lens Certification™, operated by UL.[6]
e. A Product Health Declaration, operated by Global Green Tag.[7]
f. A manufacturer's inventory containing CAS numbers of all individual compounds down to 1,000 ppm (0.1%). If the product contains a trade secret compound, GHS hazards of category 1 or 2 are listed and a concentration range is provided for each undisclosed component.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 2 Select Products with Enhanced Ingredient Disclosure

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

For at least 15 distinct permanently installed products (including flooring, insulation, wet-applied products, ceiling and wall assemblies and systems) and furniture, the following requirements are met:

a. All ingredients are disclosed down to 100 ppm.
b. All ingredients are publicly disclosed by the manufacturer, a disclosure organization or a third party through one of the following:
    1. A Declare label, operated by the International Living Future Institute.[3]
    2. A Health Product Declaration (HPD) published on the HPD repository.[4]
    3. Manufacturer's disclosure and/or through a third-party materials database platform. If the product contains a trade secret compound, GHS hazards of category 1 or 2 are listed and a concentration range is provided for each undisclosed component.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

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Part 3 Select Products with Third-Party Verified Ingredients

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

For at least 15 distinct permanently installed products (including flooring, insulation, wet-applied products, ceiling and wall assemblies and systems) and furniture, the following requirements are met:

a. All ingredients are disclosed through one of the following:
    1. A Declare label, operated by the International Living Future Institute.[3]
    2. A Health Product Declaration (HPD) published in the HPD Public Repository, operated by the Health Product Declaration Collaborative.[4]
    3. A Cradle-to-Cradle Certified™ product with a Gold or Platinum level in the Material Health Category, or a product with a Gold or Platinum Material Health Certificate from the Cradle to Cradle Products Innovation Institute.[5]
    4. A Product Lens Certification™, operated by UL.[6]
    5. A Product Health Declaration, operated by Global Green Tag.[7]
b. Ingredient disclosure is verified by a third party (i.e., an organization other than the manufacturer that is not affiliated with the ingredient disclosure certificate).

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

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X08 MATERIALS OPTIMIZATION | O

WELL Certification: 2 Pt | WELL Core: 2 Pt

Intent: Promote the selection of products that have been audited to minimize impacts on human and environmental health.

Summary: This WELL feature requires screening and labeling of products in accordance with programs that audit and restrict the use of hazardous ingredient contents in materials and products.

Issue: The vast quantity and variety of chemicals flowing through the global economy makes the task of tracing possible environmental and human health impact extremely difficult. In response to growing concerns over hazardous material and product ingredients, a number of screening and certification schemes have been introduced to the market to help differentiate safer alternatives.[1]

Solutions: Screening and certification schemes that analyze and restrict the use of hazardous ingredients in building materials— those that are environmental contaminants and/or pose human health hazards—can mitigate exposure to potentially harmful substances, help increase the demand for these products and ultimately catalyze market transformation.[2]

Part 1 Select Materials with Enhanced Chemical Restrictions

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Materials selection

For at least 25 distinct permanently installed products (including flooring, insulation, wet-applied products, ceiling and wall assemblies and systems) and furniture, the following requirements are met:

a. Have ingredients inventoried to 100 ppm.
b. Meet one of the following:
    1. Product is free of compounds listed in the Living Building Challenge's Red List v.4.0.[3]
    2. Product meets the chemical thresholds in the Cradle to Cradle Basic Level Restricted Substances List, version 4.[4]
    3. Product does not contain compounds listed in REACH Restriction, Authorization and SHVC lists.
    4. Product meets an optimization path listed under 'Advanced Inventory & Assessment' in Option 2 of LEED v4.1 credit 'Building Product Disclosure and Optimization - Material Ingredients'.[5]

OR

Option 2: Future purchase of compliant products

For projects with less than 25 distinct newly and permanently installed products (including flooring, insulation, wet-applied products, ceiling and wall assemblies and systems) and furniture, the following requirement is met:

a. Products purchased for future repair, renovation or replacement of building materials comply with chemical restrictions of Option 1 'Materials Selection'.

> **Note:** For recertification, projects must provide product specification sheets for purchases of eligible products occurring after initial certification.

> **WELL Core Guidance:** Meet these requirements for the extent of developer buildout.

Part 2 Select Optimized Products

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

At least 15 distinct products (furniture, flooring, insulation, wet-applied products, ceiling and wall assemblies and systems), as defined in Appendix X1, are certified under one of the following programs:

a. Cradle to Cradle Certified™ products with a Silver, Gold or Platinum level in the Material Health category or products with a Silver, Gold or Platinum level Material Health Certificate from the Cradle to Cradle Products Innovation Institute.[6]

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b. Living Product Challenge, Materials and Health & Happiness Petals or Living Product Certification, operated by the International Living Future Institute.[7]

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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X09 WASTE MANAGEMENT | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Mitigate environmental contamination and associated exposure to hazards present in certain wastes.

Summary: This WELL feature requires the safe management and minimization of wastes associated with hazardous chemicals present in commonly used products.

Issue: Some products may create hazardous waste if handled, transported or disposed of in an uncontrolled manner, increasing risks of exposure to contaminants released to the environment. For instance, unmanaged products containing mercury and other heavy metals may expose people to elevated toxic metals through soil, air and water.[1,2] Leftover pesticides that have become obsolete or otherwise unusable may be disposed in general-purpose dumps, and improper disposal can result in physical injury, environmental pollution and land degradation.[3] Finally, electronic waste, if not properly handled, may create significant health effects downstream.[4]

Solutions: A protocol for handling and minimizing hazardous wastes, which involves separation of hazardous from other solid wastes and procuring adequate receptors for recycling or final disposal, can help mitigate chemical pollution and associated health concerns. By raising awareness and properly managing hazardous wastes, as well as by selecting products that are easier to reuse and have a lower impact on human health, projects may minimize the generation of such wastes and the release of hazardous materials into the environment.

Part 1 Implement a Waste Management Plan

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

For all batteries, pesticides, lamps that may contain mercury, other mercury-containing equipment (including thermostats and thermometers),[5] and electrical and electronic equipment[6] present or expected to be present within the project during the building operations, a waste management plan that contains the following is developed and implemented:

a. Identification of roles, responsibilities and vendors for implementing the plan.[7]
b. Identification of the sources of waste, estimation of rates of generation and strategies to minimize waste generation.[7]
c. Strategies for waste collection. Each of the categorized wastes is separately contained in clearly labeled receptacles and removed from the building within one year.[5]
d. Protocols for cleaning spills of mercury (including broken fluorescent lamp tubes), pesticides and battery electrolyte fluid, including sealed containment of residues, as applicable.[5]
e. Protocols to track, measure and report waste stream flows.[7]
f. Protocols for off-site shipment of wastes.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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X10 PEST MANAGEMENT AND PESTICIDE USE | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Reduce the presence of pests in buildings primarily through integrated pest management (IPM) principles, favoring non-toxic pest control and the use of pesticides less hazardous to humans.

Summary: This WELL feature requires using IPM for pest control to reduce the application of pesticides and, when necessary, select low-hazard pesticides accompanied by signage detailing pesticide information at the site of application.

Issue: The presence of pests in crops, gardens and buildings has deleterious effects to the environment, our food supply and our health. While pesticides are tailored to address many problematic weeds, fungi, insects and rodents, exposure to specific pesticides may present danger to human health. For instance, studies have shown increased likelihood of cancer in children[1] and breast cancer[2], as well as birth defects upon maternal exposure to certain compounds.[3]

Solutions: Biological or chemical pesticides should only be used when absolutely necessary. Pesticide use, and associated risks, can be reduced through the application of IPM[4], which involves a decision-making process for the identification of pests, an understanding of the triggers that drive infestation, and the establishment of cultural, physical and educational barriers against their ingress.[5-7] When pesticides are needed, those deemed more protective of human health are preferred along with signage detailing pesticide information at the site of application providing further safeguard.

Part 1 Manage Pests

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

A management plan for pest control based on integrated pest management (IPM) principles is implemented for all indoor and outdoor spaces, addressing the following:

a. Plan contains the following elements:[5-7]
    1. List of roles and responsibilities for the program development, implementation, maintenance and education.
    2. Pest management objectives, including protocols for identification of pests and metrics of progress.
    3. Design and operational measures to prevent conditions that may attract pests.
    4. Pest tolerance thresholds and control strategies (including methods and response times) for when tolerance thresholds are exceeded, attending to the safety of the applicator, the occupants and the environment.
    5. Records of pest monitoring data, pest events, pesticide applications, control actions and emergency responses.
b. Each pesticide used for periodic (i.e., non-emergency) application is listed in the plan and meets one of the following:
    1. Evaluated by the Pesticide Research Institute (PRI) with a Hazard Tier ranking of 3 (least hazardous).[8]
    2. Listed in the most recent version of the City of San Francisco's Reduced Risk Pesticide List.[9]
    3. All active substances catalogued as 'low-risk' in the EU Pesticides Database.[10]
    4. All active substances are marked as "Approved" in the EU Pesticides Database[10] and are either classified as Class U or not classified in the latest version of "The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification."[11]
c. For pesticide application (periodic or emergency) within the project, the plan includes the following provisions:[12]
    1. Paper or digital notification to all building occupants on the protocol for pesticide use.
    2. Notification to all building occupants at least 24-hours prior to pesticide application, and signage posted at the site of application at least 24-hours prior to application until at least 24 hours after application.
    3. Notifications include the pesticide name, registration number, treatment location and date of application and applicator. If emergency pesticide application is needed, information on the type of emergency or reason for unplanned use.
d. The effectiveness of the plan is evaluated on an annual basis.[12]
e. The plan, records of its implementation, Safety Data Sheets (SDSs) of pesticides and results of inspections are

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available to occupants and owners.

WELL Core Guidance: Meet these requirements in the whole building.

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X11 CLEANING PRODUCTS AND PROTOCOLS | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Provide cleaning effectiveness by selecting less hazardous products and establishing adequate cleaning protocols and practices.

Summary: This WELL feature requires the restriction of hazardous or harmful ingredients in cleaning, disinfection and sanitization products, as well as the establishment of a cleaning plan, the maintenance of a cleaning schedule and a program training for staff.

Issue: Cleaning is fundamental for keeping a healthy indoor environment. Microorganisms such as house dust mites – ubiquitously present around the world– are directly related with asthma[1] and allergy[2] development. Surfaces may host pathogens present in feces and body fluids released by sick individuals, or through contact with another contaminated surface.[3] Beyond naturally-accumulating dust, commercial cleaning products may contain ingredients that may also degrade the indoor air quality and are suspected to be hazardous to human health.[4] Some products may emit substances that irritate the nose, eyes, throat and lungs and can cause or trigger asthma attacks.[5] Moreover, the interactions between cleaning agents, microbes and public health are diverse and complex[6,7], and we are just beginning to better understand them.[6] Cleaning practices may cause additional health concerns. For instance, indiscriminate use of cleaning sprays is suspected to be a risk factor for adult asthma.[8] Similarly, lack of education on the use of gloves during wet cleaning activities may explain the high prevalence of hand dermatitis in the cleaning service industry.[9,10]

Solutions: A thorough plan for cleaning operations that considers the health of occupants and cleaning staff increases the overall efficiency of the process, while reducing environmental damage.[11] The plan must align with advise from public health agencies for disinfection requirements.[12] Along personal protective equipment (PPE), the implementation of engineering controls (e.g., ventilation) and policies is key to reduce exposure to hazards during cleaning practices.[13] The provision of cleaning products that contain less hazardous ingredients may reduce the risk of respiratory and dermal symptoms.[8]

Part 1 Improve Cleaning Practices

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

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

a. Details the following:[11]
    1. Extent and frequency of cleaning.
    2. Cleaning responsibilities of building occupants and cleaning staff.
    3. Cleaning supplies available to building occupants and where they can be accessed.
    4. Process to evaluate and document adherence to the cleaning plan.
b. Identifies the following:
    1. Surfaces that require disinfection (e.g., high-touch surfaces).
    2. Frequency and/or other thresholds (e.g., number of hours, number users of a space, results from a swab test) for disinfection.
    3. Applicable governmental registration and directions of use (e.g., contact time and dilution rates) for disinfectants.
    4. Other non-chemical tools used for disinfection, if any.
c. States the following documentation procedures:[11]
    1. Record keeping practices for cleaning and disinfection activities.
    2. The chain of communications with building occupants.
    3. A system to log feedback from occupants and cleaning staff.
d. Specifies the following for cleaning materials and personal protection equipment (PPE):
    1. PPE requirements for general cleaning and specialized tasks (e.g., disinfection or dilution or chemicals).
    2. Color-coding for reusable and disposable cleaning cloths.
    3. Separate cleaning of reusable cleaning materials from other clothing or products.
e. Includes the following precautions for storage of cleaning products:

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

f. Specifies the following for cleaning tools and equipment:
   1. HEPA rated filters for vacuum cleaners.[1]
   2. If carpet and woven upholstery are present, the cleaning methodology (based on manufacturer's recommendations), favoring hot water extraction if technically feasible.
   3. Protocols for cleaning, maintenance and handling of waste accumulated in equipment (e.g., used vacuum cleaner bags).

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

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

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces. If projects provide any cleaning services in leased spaces, these services must meet feature requirements.

Part 2 Select Preferred Cleaning Products

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

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

a. Products are labeled as 'low-hazard' or 'safer' by an ISO Reference,[14] or by a third-party certification recognized by the local government where the project is located. Hazard criteria must be specific for the product classes within the scope of this feature.
b. The Safety Data Sheet (SDS) of each product discloses ingredients per EU Regulation 2015/830[15] (CLP) or California State Bill No. 258[16] and no ingredients listed in Section 3 of the SDS are classified as Category 1, 1A or 1B for the following Globally Harmonized System[17] (GHS) codes and corresponding hazard statements:
   1. H311 (toxic in contact with skin).
   2. H312 (harmful in contact with skin).
   3. H317 (may cause allergic skin reaction). Individual terpenes may be present up to a concentration of 0.5% in undiluted products.
   4. H334 (may cause allergy or asthma symptoms or breathing difficulties if inhaled).
   5. H340 (may cause genetic defects).
   6. H350 (may cause cancer).
   7. H360 (may damage fertility or the unborn child).
   8. H372 (may causes damage to organs through prolonged or repeated exposure).
c. Products meet Feature X08 Materials Optimization.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces. To earn an additional point, also meet these requirements in leased spaces. If projects provide any cleaning services in leased spaces, these services must meet feature requirements.

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X12 **B** CONTACT REDUCTION | O

WELL Certification: 2 Pt | WELL Core: 2 Pt

Intent: Implement strategies to reduce human contact with respiratory particles and surfaces that may carry pathogens.

Summary: This WELL feature requires projects to implement design and policy strategies to minimize some instances of contact with contaminated respiratory particles, as well as reduce the number of surfaces that are necessary to touch.

Issue:
Many viral diseases, including COVID-19[1] and influenza,[2] are spread by oral or respiratory emissions of liquid particles emitted by an infected person when they cough, sneeze or even exhale.[3] Factors that may affect exposure include the size distribution of the respiratory particles,[2] humidity,[4,5] air flow[5,6] and air treatment.[5,6] While the relative influence of these factors is variable, direct exposure to particles shed by an infected individual may increase a person's odds of acquiring certain diseases.[1,7]

Respiratory and fecal particles can reach surfaces either by direct deposition from the source (e.g., coughing on a surface) or indirectly through hands. On inanimate contaminated surfaces (called fomites), pathogens may survive for a number of hours or even days.[8,9] Pathogens may spread from these surfaces when touched, potentially infecting people through oral or nasal exposure.[10] Fomites have been linked to disease transmission for many common viral pathogens, including rotaviruses – the most common cause of children's diarrhea in the world – and adenoviruses, and have been associated with some strains of coronaviruses.[10,11]

Solutions: Implementing design and policy strategies aimed at reducing exposure to some particles shed by infected individuals, like establishing physical distancing among people[12,13] or providing barriers to prevent respiratory particles,[14] may slow the spread of pathogens.[15] Reimagining spaces to reduce the number of surfaces a person needs to touch, as well as implementing enhanced hygiene protocols for high-touch surfaces, may reduce the risk of pathogen transmission.[16,17]

Part 1 Reduce Respiratory Particle Exposure

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces except Dwelling Units:

The following requirements are implemented during periods when higher incidence of respiratory disease is likely:

a. At least one of the following distancing strategies:
    1. Queuing marks to increase distance between people while waiting in line (e.g., in elevator lobbies, at check-out counters) and while using moving sidewalks and escalators, as applicable.
    2. Screens, protective furnishings or other engineering controls to reduce particle exchange at security check-ins, reception areas, check-out counters and other places with frequent interaction between occupants and a stationary worker.
    3. Self-service systems to control ingress or egress to the project (e.g., at reception desks or checkout counters).

b. At least one of the following circulation strategies:
    1. One-way hallways and corridors.
    2. Separate entry and exit doors at pedestrian building entrances.
    3. Separate entry and exit for restrooms except single-user bathrooms.

c. All of the following in any shared spaces (e.g., meeting rooms, workspaces, communal kitchens):
    1. Strategies to increase distance among occupants.
    2. Expectations and requirements for usage of face coverings or personal protective equipment.
    3. Clearly communicated rules for occupancy to reduce respiratory particle exposure and rationale for their use.

d. At least one of the following communication strategies to educate occupants about the practices implemented by the project to reduce respiratory particle exposure:
    1. Monthly communication (e.g., email, webcast) to all regular building occupants.
    2. Prominent signage (physical or digital) at all building entrances and in shared spaces.

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Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

Note: Interiors projects may count base building elevators, entries and exits towards feature requirements, even if outside of the project boundary.

WELL Core Guidance: Meet these requirements in non-leased spaces.

Part 2 Address Surface Hand Touch

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces except Dwelling Units:

Option 1: Surface touch management

The following requirements are met:

a. Project offers hands-free operation (through foot, voice, sensor or personal electronic device) or implements other design strategies to avoid hand operation for at least three of the following:
    1. Regularly used pedestrian entry doors to the project, during regularly occupied hours.
    2. Elevators.
    3. All water bottle fillers, water faucets, soap and paper towel dispensers.
    4. Window blinds and indoor lighting switches and/or controllers.
    5. Lids of trash, recycling and reuse bins.
b. Project supports occupants in maintaining hand hygiene near the following high-touch surfaces:
    1. Handrails, handlebars and other structures that support mobility and accessibility.
    2. Surfaces designed to help individuals with physical and/or visual disabilities fully utilize a space (e.g., push to open door buttons, wheelchair lift controls, tactile maps or signage).

Option 2: Shared equipment usage policy

The following requirement is met:

a. Project establishes and communicates rules and expectations for the usage and cleaning of shared tools and devices (e.g., photocopiers, gym equipment, communal kitchen appliances, utensils) for all regular building occupants.

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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APPENDIX X1:

The following denominations for product classes apply throughout the Materials concept.

- *Millwork and fixtures:* Built-in cabinetry/bespoke joinery, countertops, window treatments (e.g., curtains, blinds), window films and freestanding partition panels. Beddings, pillows, artwork, rugs and appliances are not considered.
- *Ceiling and wall panels*, planks and tiles, acoustical treatments, gypsum boards, wall bases and wallcoverings including wallpaper.
- *Electrical and electronic products:* Cables, electrical boxes, tubing and conduit, fire alarms, sensors, meters, thermostats and load break switches.
- *Plumbing:* Potable water pipes (except sewer) and fittings.
- *Flooring:* Carpeting, resilient flooring (e.g., sheet, tiles) and any other natural or engineered floor covering product, including finished poured flooring.
- *Furniture:* Movable objects intended to support various human activities such as seating (e.g., chairs, stools, sofas), eating or working (e.g., tables, desks, workstations), and sleeping (e.g., beds). Also includes objects for holding and storage such as chests, shelves, bookcases, file cabinets and cabinetry (except custom-made or built-in), and space separations such as reconfigurable wall systems.
- *Interior doors and windows,* including door casings.
- *Insulation:* Thermal and acoustic insulation in walls and ceilings. Unless explicitly stated, this class excludes duct, tube and pipe insulation.
- *Wet-applied products:* Paints, adhesives, sealants, coatings and finished poured flooring.

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MIND

The WELL Mind concept promotes mental health through policy, program and design strategies that seek to address the diverse factors that influence cognitive and emotional well-being.

Mental health is a fundamental component of human health across all stages of life and is vital for the physical and social well-being of all individuals, communities and societies.[1] Mental health is not simply the absence of a mental health condition.[1] Rather, it is a state of well-being, in which individuals are able to live to their fullest potential, cope with the normal stresses of life, work productively and contribute to their community.[1] Mental health is determined by a range of socioeconomic, biological and environmental factors, such as work conditions, lifestyle and health behaviors.[1] Through a diverse set of interventions, the WELL Mind concept seeks to address and support these drivers of mental health with the goal of improving the cognitive and emotional health and well-being of those living, working, learning and spending time in built spaces.

Mental health and substance use conditions are a widespread global health concern. They collectively account for 13% of the global burden of disease and an estimated 32% of years lived with disability.[2] Alcohol and drug use contribute significantly to the global burden of premature death and disability, with alcohol alone accounting for 3.3 million deaths per year (or 6% of all deaths) and 5% of the global burden of disease.[3] Depression and anxiety disorders are among the leading causes of global burden of disease, ranking first and sixth, respectively.[4] Depression alone accounts for 4% of the global burden of disease and is considered to be among the largest causes of disability worldwide.[5]Overall, it is estimated that 14.3% of deaths worldwide (approximately eight million people per year) are attributable to mental health conditions.[6]

An estimated 18% of adults will experience a common mental health condition, such as anxiety, depression or substance abuse, over a 12-month period, and over 30% of adults will experience a mental health condition during their lifetime.[7]Approximately two-thirds of individuals experiencing common mental health conditions are employed.[8] The impact of mental health in the workplace is profound, with depression and anxiety alone costing the global economy an estimated $1 trillion due to lost productivity.[9]

Despite its enormous global impact, worldwide spending on mental health is less than $2 per person.[8] Although treatments for these conditions exist, they are often unavailable or vastly underutilized. In high-income countries, 35–50% of people living with mental health conditions receive no care or treatment.[1] This gap widens in low- and middle-income countries, where 76–85% of people living with mental health conditions do not receive necessary treatment.[1] If left unmanaged, mental health conditions – especially depression – can place an individual at risk for suicidal thoughts, attempted suicide and completed suicide. Suicide results in a tragic and preventable death, accounting for more than 800,000 deaths per year worldwide.[3]

It is increasingly recognized that a complex relationship exists between the mind and the body and that this interplay can significantly impact health and well-being. Mental and physical health impact each other across some of the most common chronic diseases, including HIV, cardiovascular disease and diabetes.[2] Furthermore, states of chronic stress are associated with increased risk of numerous adverse health consequences, such as depression, cardiovascular disease, diabetes and upper respiratory infection.[1] Depression alone is associated with an increased risk of disease, including diabetes, cancer, cardiovascular disease and asthma.[1] Due to the numerous ways in which mental health impacts physical health, people with mental health conditions experience a mortality rate 2.2 times higher than the general population and a median of 10 years of potential life lost.[6]

The built environment serves as a powerful tool to help mitigate these adverse mental health outcomes through policies, programs and design. Given the high prevalence of mental health conditions among the working population, the workplace is increasingly being seen as an important target for mental health promotion, prevention and interventions.[10] There are many strategies organizations can take to promote mental health, including: improvements to mental health literacy and efforts to reduce stigma; provision of healthy living and working conditions for all, including organizational improvements to promote positive work environments and provision of stress management programs; and strategies that address gaps in access to and use of care by supporting access to mental health, substance use and addiction services and treatment.[5,11] Improving opportunities for restoration through mindfulness programming, restorative spaces and support of optimal sleep can also have a marked impact on physical and mental well-being, including relief from negative symptoms associated with anxiety, depression, pain and stress, as well as enhancements in overall perceived health.[12,13] Lastly, design strategies, such as increasing nature contact within built spaces, has been linked with numerous health promoting benefits, including decreased levels of depression and anxiety, increased attentional capacity, better recovery from job stress and illness, increased pain tolerance and

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increased psychological well-being.[14–16]

The WELL Mind concept promotes implementation of design, policy and programmatic strategies that support cognitive and emotional health through a variety of prevention and treatment efforts. In combination, these interventions have the potential to positively impact the short- and long-term mental health and well-being of individuals of diverse backgrounds throughout a community.

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M01 MENTAL HEALTH PROMOTION | P

Intent: Promote mental health and well-being through the provision of supportive programs, policies and resources.

Summary: This WELL feature requires projects to provide programs, policies and resources that support and promote occupant mental health.

Issue: Recent estimates indicate that common mental health conditions (e.g., anxiety, depression, substance use) are experienced by 18% of adults over a 12-month period, and 30% of adults over their lifetime.[1] Depression is the leading cause of disability in the world, and depression and anxiety alone cost the global economy an estimated $1 trillion due to lost productivity, yet global annual spending on mental health is less than $2 per person.[2,3] Failure to address mental health in the workplace can contribute to high turnover, presenteeism and absenteeism, repetitive recruitment and training costs, increased use of drug plans, disability claims, sick leave, employee assistance plans (EAPs) and other costly supports, increased accidents and injuries, and burnout.[4–6]

Solutions: Given the high prevalence of mental health conditions among the working population, the workplace is an important target for promotion, prevention and intervention efforts.[7,8] Strategies include increased organizational support, enhancement of mental health literacy and reduction of stigma, which have been shown to help people recognize signs of poor mental health and encourage help-seeking behavior.[8,9]Improving opportunities for restoration through mindfulness programming and optimal sleep can have a marked impact on mental well-being, including relief from negative symptoms associated with anxiety, depression, pain and stress, as well as enhancements in overall perceived health.[10–13]

Part 1 Promote Mental Health and Well-being

For All Spaces:

The following requirements are met:

a. At least two of the following are available to all employees and students at no cost:

   1. Education or awareness efforts on mental health and well-being, offered quarterly, either in-person or virtually (e.g., webcast on stress management, presentation on mindfulness, email on healthy sleep habits).[14,15]
   2. Trainings or courses related to mental health and well-being, offered annually, either in-person or virtually (e.g., Mental Health First Aid, stress management training).[14,15]
   3. Mindfulness or restorative programming, offered weekly, either in-person or virtually (e.g., ongoing access to guided mediation application, weekly yoga classes).[7]
   4. Policy that establishes healthy working hours, outlining the maximum hours to be worked per 24-hour and seven-day period.[16]
   5. Dedicated space for restoration and relaxation, with an accompanying policy permitting breaks during work or school hours.[16,17]

b. Annual communication (e.g., email, online module, in-person training) is provided to all regular occupants, and onboarding communications are provided to all new employees, specifically addressing all mental health and well-being benefits, resources and programs available through the project or organization.

Note: Projects may achieve points in optimizations that overlap with strategies listed in Part 1.a.

WELL Core Guidance: Meet these requirements for direct staff.

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M02 NATURE AND PLACE | P

Intent: Support occupant well-being by incorporating the natural environment throughout the project and integrating design that celebrates the project's unique identity.

Summary: This WELL feature requires the integration of nature throughout the project, as well as design that celebrates the project's unique identity and inspires human delight.

Issue: Humans are increasingly living in environments where they have insufficient exposure to nature.[1,2] Natural elements, such as plants and daylight, have been linked with health-promoting benefits, including decreased levels of depression and anxiety, increased attentional capacity, better recovery from job stress and illness, increased pain tolerance and increased psychological well-being.[3–5] The incorporation of plants in the work environment is linked with improved employee morale, job satisfaction, and objective and subjective measures of productivity and with decreased absenteeism.[4,6–8] Finally, the presence of water, natural light and nature views can impact mood, memory and performance in the workplace.[9–11] A dose-response relationship has been found with exposure to indoor nature, with studies showing that as workday nature contact increased, perceived job stress, subjective health complaints and sickness absence decreased.[5,12,13]

Solutions: Incorporating natural elements into buildings can support occupant relief from stress and mental fatigue, as well as help establish a sense of place.[14] The benefits of nature access can be achieved through numerous pathways such as direct (e.g., plants in the office), indirect (e.g., window views) or representational (e.g., photographs).[4] Additionally, incorporating other key aesthetic elements, such as local culture, materials and art can help celebrate the project's unique identity and further enrich the space for occupants and visitors.

Part 1 Provide Connection to Nature

For All Spaces:

The project integrates the following throughout the space, including common circulation routes, shared seating areas and rooms (e.g., conference rooms, common spaces) and workstations (as applicable):

a. Natural materials, patterns, shapes, colors, images or sounds.[9,15]

b. At least one of the following:

    1. Plants (e.g., potted plants, plant beds, plant walls).[9,15]
    2. Water (e.g., fountain).[9,15]
    3. Nature views (e.g., outdoor views, simulated views).[9,15]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

Part 2 Provide Connection to Place

For All Spaces:

The project integrates design elements that address the following:

a. Celebration of culture (e.g., culture of occupants, workplace, surrounding community).[16]

b. Celebration of place (e.g., local architecture, materials, flora, artists).[16]

c. Integration of art.[16]

d. Human delight.[16]

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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M03 MENTAL HEALTH SERVICES | O

WELL Certification: 4 Pt | WELL Core: 2 Pt

Intent: To increase awareness of mental health conditions, as well as offer supportive workplace services and accommodations for those living with such conditions.

Summary: This WELL feature requires projects to support occupant mental health through the provision of programs and resources.

Issue: Obtaining appropriate treatment for mental health conditions remains a global barrier. It is estimated that 76-85% of people in low- and middle-income countries and 30-50% in high-income countries receive no treatment, and those who do receive help often face issues with poor quality care.[12] Compared to other illnesses, mental health conditions have longer delays in treatment onset.[3,4] Many factors contribute to this gap, including a lack of equity in healthcare coverage between benefits for mental health, substance abuse and addiction, and benefits for other medical needs, as well as insufficient mental health promotion to increase awareness and minimize the stigma associated with mental health conditions.[5,6] This lack of treatment has major public health and economic consequences: individuals with depression miss an average of 4.8 workdays and experience 11.5 days of reduced productivity in a three-month period, and people living with mental health conditions are overall less likely to receive high quality medical care and preventive health services (e.g., immunizations, cancer screening, tobacco cessation support).[7,8] Furthermore, many individuals who go through emergency situations (e.g., natural disaster) experience psychological distress, resulting in depression, anxiety, feelings of hopelessness, fatigue, irritability or anger.[9,10] These impacts can be exacerbated by added stressors during emergencies such as social isolation, economic hardship or grief, reinforcing the need for adequate access to mental health services.[9,10]

Solutions: Equitable access to screening and mental health services can help encourage care utilization, support early diagnosis and overall mitigate poor mental health outcomes.[5] Enhanced social support and adjustments to the work environment can also help enable a successful return for employees coming back from leave due to a mental health condition.[11,12] Additionally, providing access to mental health services during and after emergency situations, such as psychological first aid, crisis counseling and bereavement counseling, is critical to supporting employee short-term recovery and long-term productivity, functioning and well-being.[9,10,13,14]

Part 1 Offer Mental Health Screening

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

A clinical screening or self-assessment screening tool for common mental health conditions is made available to all employees and students at no cost and meets the following requirements:

a. Addresses, at minimum, stress, depression, anxiety and substance use.

b. Provided confidentially, either in-person or virtually, through a licensed mental health professional, third party organization, online screening or health insurance offering.

c. Includes directed feedback and/or guidance on interpretation of results and provides next steps for those who screen positive or at-risk.[6,15]

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Offer Mental Health Services

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

The following requirements are met for all eligible employees:

a. Mental health services are available at no cost or subsidized and include the following at a minimum:

    1. Clinical screening and referral to licensed mental health professionals and support resources.[6]
    2. Inpatient treatment (e.g., residential programs, hospitalization).[6]
    3. Outpatient treatment, including telemental health services (e.g., in-person therapy, online therapy).[6,16]
    4. Prescription medication coverage that allows for proper use of prescribed medications.[6]

b. Organizational commitment to mental health parity in health service coverage.[6]

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c. Information on benefits coverage and how to access mental health services and community resources is easily and confidentially available (e.g., via a health portal or employee website).[6]

d. Confidential benefits consultation is available with clearly identified and qualified support staff (e.g., benefits counselor, human resources representative).

WELL Core Guidance: Meet these requirements for direct staff.

Part 3 Offer Workplace Support

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Supportive workplace accommodations are clearly described and available for all employees, without a need to disclose the underlying health reason, including the following:

a. Sick leave may be used for mental health needs (e.g., appointments).[12,17,18]

b. Short- or long-term leave or disability for mental health needs, with the option of phased return to work after returning from leave.[18,19]

c. Increased interpersonal support (e.g., manager support with prioritizing and managing workloads, increased frequency of one-on-one check-ins).[12]

d. Adjustment of work schedule to support mental health needs (e.g., appointments, optimal productivity).[12,17,18]

e. Adjustment of the physical environment to support mental health needs (e.g., moving a workstation to a busier or a quieter area, providing a quiet space for breaks, providing earplugs or headphones, increasing personal space, providing the ability to work from home).[12,17,18]

WELL Core Guidance: Meet these requirements for direct staff.

Part 4 β Support Mental Health Recovery

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Projects offer mental health services and resources to support recovery from a traumatic event to all employees at no cost or subsidized, on-site, in-person within 0.25 mi(400 m) of the project boundary or virtually, including at least three of the following:

a. Crisis counseling or trauma-focused psychotherapy with qualified mental health professionals.

b. Psychological first aid (PFA) training offered to all employees and/or required for manager-level employees.[20]

c. Bereavement counseling and materials on coping with grief, including resources for returning to work after a loss.

d. Information on benefits coverage and how to access additional mental health services, made conveniently and confidentially accessible to employees.

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for direct staff.

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M04 MENTAL HEALTH EDUCATION | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Promote mental health awareness and education through the provision of mental health-focused training or education offerings.

Summary:
This WELL feature requires projects to provide education and training to employees and managers to help them better understand how to manage their own mental health and support others.

Issue: There is a need for increased knowledge regarding causes and recognition of different types of mental health conditions, beliefs about treatment for mental disorders and reduction in stigma against those with mental health conditions.[1,2] The combination of these factors leads to delays in recognition and help-seeking, hinders public acceptance of evidence-based mental health care and denies those with mental health conditions appropriate support from their communities.[2]

Solutions: Workplace mental health education interventions can help create a more supportive work environment. Enhancing knowledge and awareness can reduce stigmatizing attitudes and discrimination, as well as improve employee mental health via increased and potentially earlier help-seeking.[3] Education and anti-stigma interventions have been shown to have a positive impact on participants' own general mental health,[3] as well as their behavior toward those with mental health conditions, such as: enhancing perceived confidence and self-efficacy in identifying and supporting a person with a mental health condition, increased likelihood of advising those in need to seek professional help and greater readiness to provide help in a mental health situation.[3] A systematic review of Mental Health First Aid training demonstrated increased participants' knowledge regarding mental health, decreased negative attitudes, increased supportive behavior and confidence in helping others and has been shown to be highly acceptable in a workplace setting.[4,5]

Part 1 Offer Mental Health Education

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Trainings (in the form of education seminars, workshops or classes) are offered at least twice per year to regular occupants and meet the following requirements:

a. Address at least two of the following topics:
    1. Managing personal mental health and well-being, covering topics such as developing mentally healthy habits and self-care practices, fostering relationships and social connections and managing mental health at work.[6]
    2. Common mental health conditions or concerns, covering, at minimum, depression, anxiety, substance use, stress, and burnout, and loneliness and social isolation.
    3. Signs and symptoms of mental health distress, including how to identify emotional distress and appropriately respond (e.g., Mental Health First Aid).[6]
b. Provided in-person or virtually, in group or individual settings, and through vendors, on-site staff, health insurance plans, community groups or other qualified programs (e.g., Mental Health First Aid).[7]

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Offer Mental Health Education for Managers

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

All managers undergo annual mental health training (in the form of education seminars, workshops or classes) that meets the following requirements:

a. Addresses at least three of the following topics:
    1. Identifying and reducing workplace stress–related issues (e.g., conducting performance reviews, effective communication skills, personnel management, conflict resolution).[7]
    2. Recognizing common mental health conditions or concerns, covering, at a minimum, depression, anxiety, substance use, stress and burnout, and loneliness and social isolation.[7]

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3. Supporting employee mental well-being using strategies to prevent burnout, low motivation, fatigue, poor work-life balance and other work-related stress issues.[8]
4. Recognizing employee mental health concerns or crises, including increasing awareness of workplace and community resources available to employees.[7]

b. Provided in-person or virtually, in group or individual settings, and through vendors, on-site staff, health insurance plans, community groups or other qualified programs (e.g., Mental Health First Aid).[7]

WELL Core Guidance: Meet these requirements for direct staff.

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M05 STRESS MANAGEMENT | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Identify areas of stress within the workplace and create a plan for stress management.

Summary: This WELL feature requires projects to assess stress within the organization and create a plan for relieving or modifying sources of stress.

Issue: Stress is directly linked to seven of the ten leading causes of death in the world, as well as numerous negative health consequences, including obesity, high cholesterol, muscle tension and backache, migraines and chronic headaches and poor recovery from illness.[1–4] Stress is also a predictor of adverse mental health outcomes, such as depression, anxiety, substance use, suicide, emotional exhaustion and burnout.[3–5] When stressed, individuals are less likely to engage in other key health behaviors, including smoking cessation, healthful eating and physical activity.[3] Employee stress is incredibly common, with recent studies reporting 94% of workers feel stress on the job and 25% report work as their number one stressor.[6,3] Stressed employees are more likely to quit, be involved in an accident, experience reduced performance and incur an average of nearly 46% higher health care expenditures compared to less-stressed peers.[7] Employees who experience stress are more likely to miss work, resulting in an estimated one million worker absences per day due to stress.[3]

Solutions: Numerous factors increase the likelihood of workplace stress, such as low support from supervisors and colleagues, little control over work processes, unmanageable and high demands, concern over a lack of job security and low opportunity for advancement or professional development.[3]Stress and its associated risks can be reduced through interventions that adjust job stressors, such as changes in operations, increases in co-worker and supervisor support and training employees in developing resilience to withstand job stressors.[4,5]

Part 1 Develop Stress Management Plan

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

The project develops a stress management plan through completion of the following:

a. Assess at least three of the organization- or project-wide metrics below:
    1. Frequency of employees working more than 48 hours per seven-day period.[8]
    2. Frequency of absenteeism, use of sick days and personal days or leave due to disability or illness.
    3. Frequency of employees not using allocated paid time off.
    4. Frequency of performance issues.
    5. Employee retention and turnover rates.
    6. Employee survey responses.
b. Identify opportunities to address employee stress, covering the topics below:
    1. Opportunities for organizational change to address employee stress (e.g., adjustments to work environment, shifts in work processes, workload, management or staffing).[9]
    2. Opportunities for employee participation in organizational decisions regarding workplace issues that may affect job stress (e.g., work environment, processes, scheduling).[9]
c. Outline a plan for implementation, including:
    1. Who is leading the initiative.[10]
    2. What is to be completed.[10]
    3. Where in the organization it will occur and who will be impacted.[10]
    4. When and how it will be implemented.[10]
    5. Availability of support from key management or leadership.[4]

> **WELL Core Guidance:** Meet these requirements for direct staff.

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M06 RESTORATIVE OPPORTUNITIES | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Support employee well-being by providing opportunities for recovery and restoration within and outside the workplace.

Summary:
This WELL feature requires projects to support recovery and restoration from work and to encourage a healthy work-life balance by providing opportunities for sleep, breaks throughout the workday and sufficient paid time off.

Issue: Long working hours and insufficient opportunities for recovery are associated with numerous adverse outcomes, including cardiovascular and immunologic reactions, reduced sleep quality and duration and increased risk for stress, burnout, excessive alcohol use and poor diet.[1,2] Insufficient sleep, in particular, is associated with numerous negative outcomes, such as increased pain and anxiety, impaired performance and productivity and increased errors and risk of accidents.[3–5] Long hours are also connected to reductions in employee creativity and morale.[2,6] Research shows that working over weekends inhibits recovery from work-related stress and that ongoing periods without vacation have adverse health effects, including increased cardiovascular risk.[5]

Solutions: Employees need sufficient opportunities to psychologically detach and recover during non-work hours, such as weekends, vacations and evenings.[5] Findings indicate that mentally distancing oneself from work and engaging in restorative activities on a day-to-day basis is linked to employee well-being, including higher life satisfaction and mood, maintained workplace performance, lower burnout and fewer health complaints.[5] Targeted interventions, such as limits on working hours and schedule, can help support individuals in achieving sufficient and high-quality sleep.[7,8] Research indicates that regular vacations may have a protective effect against chronic work stress by providing a sustained period of relief from daily stressors, demands and routines.[9,10] Short afternoon naps also provide an opportunity for restoration during the workday, leading to benefits in mood, alertness and cognitive performance, such as productivity and learning.[11,12]

Part 1 Support Healthy Working Hours

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Working hours

The following requirements are met for all employees:

a. A minimum of 11 consecutive hours off from work per 24-hour period.[13,14]

b. A minimum of 24 consecutive hours off from work per 7-day period.[14]

c. For employees who engage in shift work:

   1. Work and communications are expected only for the duration of the employee's shift.[13]
   2. Employees are provided a minimum 48-hour advance notice of shift changes.[15]

d. For employees who do not engage in shift work, work and communications are expected only during the organization's business hours in the local time zone.[13,16]

Option 2: Paid time off

The following requirements are met for all eligible employees:

a. Paid time off with a minimum of 20 days per calendar year (not including designated sick days or standard paid holidays).[14]

b. Work and communications are not required and are discouraged during paid time off.[5]

c. Sick, vacation, floating holiday, personal, rollover and all other employer-provided days off from work are clearly defined, addressing accrual policy, cap on rollover days allowed and date by when rollover days must be used.

Option 3: Student start times

The following requirement is met for students in secondary schools:

a. The school day starts no earlier than 8:30 a.m.[17]

> **WELL Core Guidance:** Meet these requirements for direct staff.

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Part 2 Provide Nap Policy and Space

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Nap policy

The following requirement is met for all eligible employees:

a. Employees are allowed to engage in at least one nap or rest break of at least 30 minutes during the workday (not to be combined with designated time for meal breaks).[13,18]

Option 2: Nap space

The following requirements are met for all eligible employees:

a. Access to at least one acoustically and visually separated environment located in a designated quiet zone.

b. At least one fully reclining furniture option (e.g., bed, daybed, couch, chair, cushioned roll-out mat, nap pod) for every 100 eligible employees.[13,18]

> **Note:**
> Projects should refer to feature S01 Sound Mapping, Part 1: Label Acoustical Zones for all designated quiet zones.
>
> Projects can utilize one room as a combined nap space (M06) and restorative space (M07). Projects will only receive points for both features, if all requirements for M06 Part 2 and M07 Part 1 have been met.

> **WELL Core Guidance:** Meet these requirements for direct staff

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M07 RESTORATIVE SPACES | O

WELL Certification: 1 Pt | WELL Core: 2 Pt

Intent: Support access to spaces that promote restoration and relief from mental fatigue or stress.

Summary: This WELL feature requires projects to provide spaces that promote a restorative environment and encourage relief from mental fatigue and stress.

Issue: Work-induced fatigue is common among office workers, with research indicating that over 20% of the workforce experiences prolonged fatigue.[1,2] During the workday, individuals experience fatigue caused by a depletion of physical and mental resources, resulting in an accumulated need to recover from mental fatigue and stress.[1] The experience of prolonged fatigue combined with a high need for mental recovery is strongly associated with psychological distress, including decreased mental acuity, deficits in motivation and irritability caused by prolonged exposure to stress.[1,2]

Solutions: By providing restorative spaces for individuals to step away from the stress of the office environment, recharge and refocus, employers can help alleviate the negative effects associated with workplace fatigue or mental depletion.[3] Through incorporation of nature, among other restorative elements, these spaces can help relieve stress and mental fatigue, support focus and encourage overall mental well-being.[4] Exposure to plants and other natural elements has been linked with decreased levels of diastolic blood pressure, depression and anxiety, increased attentional capacity, better recovery from job stress and increased psychological well-being.[5,6] Nature interaction has also been shown to support recovery from illness and increase pain tolerance.[5,6] Outdoor spaces can also be used to promote calm and encourage restorative activities. Both indoor and outdoor spaces can also be used for individuals with a wide variety of beliefs, religions and traditions, including prayer and meditation.

Part 1 Provide Restorative Space

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Restorative space

At least one designated restorative space is available to all regular occupants. The space may be indoor or outdoor and may be made up of a single space or multiple spaces that meet the following requirements:

a. Is designated for relaxation and restoration. Space may be multi-purpose but is not to be used for work.

b. Totals at least 75 ft^2(7 m^2) plus 1 ft^2(0.1 m^2) per regular occupant, up to a maximum of 2,000 ft^2(186 m^2).

c. Provides a restorative environment that considers at least five of the following:

    1. Lighting (e.g., dimmable light levels for indoor spaces).
    2. Sound (e.g., water feature, natural sounds, sound masking).[7]
    3. Thermal comfort (e.g., sun-exposed and shaded areas for outdoor spaces).
    4. Seating arrangements that accommodate a range of user preferences and activities (e.g., movable lightweight chairs, cushions, mats).[7]
    5. Nature incorporation.[8]
    6. Calming colors, textures and forms.[7]
    7. Visual privacy.[7]

d. Includes signage, education materials or other resources explaining the purpose and intended use of the space.

> **Note:** If restorative space is provided only outdoors, it must be functional year-round.

Option 2: Workday breaks

The project encourages the use of restorative space(s) through the following:

a. Paid breaks away from the workstation for all employees.[9]

> **WELL Core Guidance:** Meet the Restorative space requirements for the whole building and the Workday breaks requirement for direct staff.

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M08 RESTORATIVE PROGRAMMING | O

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

Intent: Support access to programs that promote restoration and relief from mental fatigue or stress.

Summary: This WELL feature requires projects to develop ongoing programming for occupants that is focused on relaxation, restoration or mindfulness, such as meditation or mindful movement.

Issue: Workplace stress is incredibly common. In the European Union, for example, an estimated one in three workers experiences work-related stress.[1]Exposure to stressful work conditions is associated with poor mental and physical health.[2] Highly stressed employees are at risk for numerous negative outcomes, including decreased productivity, greater absenteeism, increased occupational injury and higher overall medical expenditures.[2]

Solutions: Introducing mindfulness into the workplace has been shown to lower employee stress, as well as improve focus, clarity of thinking, decision-making and emotional intelligence.[2,3] Meditation interventions targeting workers have been found to be effective at reducing work-associated stress, depression and anxiety, as well as reducing burnout and improving mood and sleep quality.[2] A recent systematic review concluded that mindfulness meditation can help reduce negative dimensions of psychological stress, including improving anxiety, depression, pain, stress and overall mental health.[4] Mindfulness-based stress reduction, a widely disseminated and frequently used practice, has been shown to reduce symptoms of stress, depression and anxiety, and enhance self-esteem, body image, mood and coping with other health problems, such as chronic pain, fatigue, stress and insomnia.[5–7]Mindfulness-based practices, whether formal or informal, can help improve employee focus and productivity, support stress management and reduce employer costs through improvements to overall health and well-being.[2,3]

Part 1 Provide Restorative Programming

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

At least two of the following are offered to all eligible employees at no cost or subsidized by at least 50%:

a. Mindfulness training course (e.g., eight-week mindfulness-based stress reduction course (MBSR)) offered live, either in-person or virtually, by a qualified mindfulness instructor at least twice a year, that meets the following:
    1. Defines mindfulness and its component parts.
    2. Covers relevant research on mindfulness.
    3. Teaches both formal practices (e.g., mindfulness meditation, yoga postures) and informal practices (e.g., mindful eating, mindful listening) that can be applied during the workday.
b. Mindfulness programming (e.g., guided mediation, yoga) offered live, either in-person or virtually, at least once a week in a designated quiet zone.
c. Digital mindfulness offerings (e.g., guided meditation application). Employees have unlimited access to at least one digital offering and access to at least one designated quiet zone.

> **Note:** Refer to feature S01 Sound Mapping, Part 1: Label Acoustical Zones for all designated quiet zones.

> **WELL Core Guidance:** To earn this optimization, the requirements should be met for direct staff.

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M09 ENHANCED ACCESS TO NATURE | O

WELL Certification: 2 Pt | WELL Core: 4 Pt

Intent: Support access to nature beyond M02: Access to Nature and Beauty, by further incorporating nature through interior design, exterior design and access to nearby nature.

Summary: This WELL feature requires the integration of nature and natural elements into the interior and exterior of the project, as well as the provision of nature views and nearby nature, such as green and blue spaces.

Issue: Exposure to plants and other natural elements has been linked with decreased levels of diastolic blood pressure, depression and anxiety, increased attentional capacity, better recovery from job stress and illness, increased psychological well-being and increased pain tolerance.[1,2] The incorporation of plants in the work environment is linked with improved employee morale, decreased absenteeism and increased worker efficiency and job satisfaction.[1,3] The incorporation of water into built spaces can also relieve stress, promote satisfaction and enhance performance.[4] Access to outdoor green spaces is associated with a range of short- and long-term mental health benefits for individuals across the life span, from children to older adults.[5–7] The many associated benefits include lower levels of anxiety and depression, as well as improved mental recovery from stress and fatigue.[8]

Solutions: A dose-response relationship has been found with exposure to indoor nature, with research finding that as workday nature contact increased, perceived job stress, subjective health complaints and sickness absence decreased.[9–11] Researchers also hypothesize that access to outdoor green spaces impacts mental health and well-being through cognitive restoration, and that physiological and emotional changes take place, when individuals are exposed to natural settings.[12] The benefits of nature access have been found across diverse age groups, and supporting access to outdoor green and natural spaces can support the health and well-being of a wide range of individuals within a built community.[13,14]

Part 1 Provide Nature Access Indoors

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

The project provides a combination of indoor plants (e.g., potted plants, plant beds, plant walls), water feature(s) and/or view(s) comprising of natural areas, such as green spaces (e.g., park, forest) or blue spaces (e.g., ocean, lake) that meet a combination of the following requirements:

a. Within direct line of sight of at least 75% of all workstations and seats within conference rooms, lecture halls or classrooms.

b. Within 33 ft(10 m) of all workstations and seats within conference rooms, lecture halls or classrooms.

> **Note:** Water features that may produce water aerosols (e.g., decorative fountains) cannot be installed in hospitals, healthcare settings or senior living facilities.[15]

> **WELL Core Guidance:** Meet these requirements in the whole building.

Part 2 Provide Nature Access Outdoors

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Outdoor nature

One of the following requirements is met:

a. Outdoor nature access facilitated by the conditions below:

    1. Outdoor space of an area of at least 5% of the project interior area must be accessible to all regular occupants.

    2. At least 70% of the accessible outdoor space as viewed from above must include plants or natural elements, including tree canopies.

b. Nearby nature access facilitated by the conditions below:

    1. At least one green space or blue space is within a 650 ft(200 m) walk distance from the project boundary and available to all regular occupants during open hours of the space(s).

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2. Total combined green space must be at least 1.25 acre(0.5 hectare).[16]

Option 2: Outdoor nature access

The following requirement is met:

a. Occupants are encouraged to access outdoor nature (e.g., presence of signage or maps to outdoor nature, availability of breaks during the workday to go visit outdoor nature).

Note: Interiors projects may count base building amenities towards feature requirements.

WELL Core Guidance: Meet these requirements in the whole building.

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M10 TOBACCO CESSATION | O

WELL Certification: 3 Pt | WELL Core: 2 Pt

Intent: Reduce the use of tobacco through interventions that support tobacco cessation and prevent the sale and advertisement of tobacco products.

Summary: This WELL feature requires projects that sell retail goods to restrict sale and marketing of tobacco products and supports employee access to tobacco cessation support programs.

Issue: Tobacco is responsible for an estimated six million deaths per year globally among direct users, and serves as the cause of death for up to half of its users.[1,2] In addition to those deaths caused by direct use, an estimated 890,000 annual deaths can be attributed to non-user exposure to second-hand smoke.[1] In the workplace, employees that smoke incur greater absences, take more sick days and have higher health care costs than non-smoking employees.[3] Despite tobacco's impact, national comprehensive health services that fully or partially cover services to support tobacco cessation are only available in 24 countries, benefiting just 15% of the world's population.[1,4] Although 70% of U.S. adult smokers are interested in quitting and 40% of smokers attempt to quit each year, only 8% of smoking employees report that their workplace offers smoking cessation assistance.[5–7]

Solutions: Employers can play a key role in supporting employee tobacco cessation efforts.[7] Among those who attempt to quit, counseling and medication more than double the chance of quitting success.[1] Worksite-based incentives and competitions, when combined with additional interventions to support individual cessation efforts, can be effective in reducing tobacco use among workers.[8] Another influencing factor on tobacco use is an individual's proximity to outlets where it is sold.[9] Restricting the sale of tobacco on-site is a key strategy for preventing or curbing use of tobacco products, as well as providing support to those trying to quit.[9,10]

Part 1 Provide Tobacco Cessation Resources

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Incentive program

The project implements a tobacco cessation program for all eligible employees that meets the following requirements:

a. Focused on increasing or improving motivation or action to quit, or maintaining quit effort.[8,11]

b. Includes incentives or rewards (e.g., direct financial payments, lottery for prizes) provided for participation in quit effort or success in abstaining from tobacco use.[8,11]

Option 2: Individual cessation resources

Tobacco cessation resources are available to all eligible employees at no cost or are subsidized and meet the following requirements:

a. Resources referring tobacco users to tobacco cessation telephone quit lines or online quitting resources.[11]

b. Tobacco cessation counseling. Programs may be provided in-person or virtually; in group or individual settings; through vendors, on-site staff, health insurance plans or programs, community groups or other qualified professionals (e.g., tobacco cessation specialist).[11]

c. Prescription tobacco cessation medications and nicotine replacement products (e.g., inhalers, nasal sprays, bupropion, varenicline).[11]

d. Over-the-counter nicotine replacement products (e.g., gum, patches, lozenges).[11]

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Limit Tobacco Availability

WELL Certification: 1 Pt | WELL Core: 1 Pt

For Retail Spaces:

The following requirements are met for projects where retail products are sold on a daily basis within the building site:

a. Sale of tobacco products (including e-cigarettes) is prohibited within the building site.[11]

b. Tobacco products (including e-cigarettes) are not marketed or promoted.[12]

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WELL Core Guidance: Meet these requirements in the whole building.

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M11 SUBSTANCE USE SERVICES | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Increase availability and access to substance abuse and addiction support services, resources and care and prevent the development of substance abuse and addiction among occupants.

Summary: This WELL feature requires projects to outline policies regarding drug and alcohol use in the workplace, provide education on substance use and addiction and support access to substance use services.

Issue: Alcohol and drug use contribute significantly to the global burden of premature death and disability.[1] Harmful use of alcohol is a leading global risk factor, accounting for 3.3 million deaths per year (or 5.9% of all deaths) and 5.1% of the global burden of disease in 2014.[2] Within the workplace, alcohol use is a significant risk factor for absenteeism, presenteeism, accidents and employee turnover.[3,4] It is also estimated that approximately half of the overall social costs of alcohol are due to lost productivity.[3] In addition to alcohol, illicit drug use remains a serious global public health concern: in 2013, 246 million people between 15 and 64 years of age used illicit drugs, of which one in ten suffered from a drug use disorder or dependency.[5]

Solutions: Prevention programs that address substance use through education and workplace policy, as well as available and affordable screening and treatment offerings, have been shown to be effective methods of preventing unhealthy substance use habits and supporting those struggling with substance abuse and addiction.[3,4,6] The return on investment in offering substance use treatment and prevention services is known. For example, each $1 invested in screening and brief counseling interventions saves approximately $4 in health care costs.[7] Offering prevention, education and support services provides an opportunity to reduce the costs companies face as a result of undiagnosed and untreated substance abuse.[7]

Part 1 Offer Substance Use Education

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Substance use policy

The following requirement is met:

a. A policy is in place regarding the use of alcohol and legal, recreational drugs on-site and is clearly communicated to all regular occupants.[7]

Option 2: Substance use education

Trainings (in the form of education seminars, workshops or classes) are offered at least once per year to regular occupants and meet the following requirements:

a. Address the following topics:

    1. Management of personal substance use, covering, at minimum, safe substance use habits, signs of dependency or addiction and short- and long-term health risks associated with substance misuse or addiction.[8,9]
    2. Prescription opioid education, covering, at minimum, questions to ask at point of prescribing, safe use (e.g., storage, disposal, driving while using) and risks and signs of dependency or addiction.[9]
    3. How to appropriately respond to a peer struggling with substance use, covering, at minimum, how to support a peer's recovery efforts and what to do in the case of relapse or a substance use emergency (e.g., withdrawal, overdose).[8]

b. Provided in-person or virtually; in group or individual settings; through vendors, on-site staff, health insurance plans or programs, community groups or other qualified practitioners or programs (e.g., Mental Health First Aid).[10]

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Provide Substance Use and Addiction Services

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

The following requirements are met for all eligible employees:

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a. Substance use and addiction services are available at no cost or subsidized and include at a minimum:
    1. Clinical screening and referral to licensed mental health professionals and support resources.[7]
    2. Counseling services, including telemental health services (e.g., online behavioral therapy).[7]
    3. Outpatient treatment (e.g., day programs).[7]
    4. Inpatient treatment (e.g., residential programs, hospitalization).[7]
    5. Medication-assisted treatment (e.g., methadone treatment).[7]
b. Organizational commitment to mental health parity in health service coverage.[8]
c. Information on benefits coverage and how to access substance use and addiction services and community resources (e.g., peer support groups, online support groups) is easily and confidentially available (e.g., via a health portal or employee website).[7,8]
d. Confidential benefits consultation is available with clearly identified and qualified support staff (e.g., benefits counselor, human resources representative).

WELL Core Guidance: Meet these requirements for direct staff.

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COMMUNITY

The WELL Community concept aims to support access to essential healthcare, build a culture of health that accommodates diverse population needs and establish an inclusive, engaged occupant community.

Within every built space there exists a unique community of people with diverse characteristics who are linked by social ties, share common perspectives and engage in joint action and experiences in shared settings or locations.[1] The global, national and local conditions that impact the health of each individual in a community are known as the social determinants of health, which include physical determinants, or the physical and built conditions that impact health.[2,3] Determinants of health can influence health disparities, which are the differences in health status between population groups resulting from unequal distribution of power and resources as a function of gender, race, ethnicity or socio-economic status.[3] For example, many people worldwide still struggle with low health literacy and limited access to basic health services, which varies based on race, ethnicity, socioeconomic status, age, sex, disability status, sexual orientation, gender identity and residential location.[4,5,6,7,8] Additionally, an estimated 235 million urban families live in substandard housing, leading to poor health outcomes like asthma, infectious disease and cardiovascular events.[9–11,12,13,14] Policies and services that support working caregivers, like new parents, are critical to an inclusive workplace culture of health, but are not universally provided.[15,16] Exclusive hiring and promotion practices also present barriers to advancement for specific populations: only 55% of U.S. companies report racial diversity as a priority, and in the UK, women's earnings are only 80.2% of men's.[17,18] Furthermore, due to how differently built spaces are designed and operated, and to the diversity of occupants in a given space, many environments are not designed with consideration of diverse health needs or abilities.[19,20,21,22,23,24] Projects that do not consult stakeholders during the planning process or neglect to gather their feedback after occupancy often fail to holistically serve stakeholder needs.[25,26]

Promoting community well-being must begin with supporting the fundamental factors that influence individual and collective health. Providing equal and affordable access to comprehensive health services supports better individual and community health outcomes, reducing health disparities and overall healthcare costs.[2–4,27,28] Health promotion programs, from immunization programs and on-demand services to paid sick leave policies and incentive-based initiatives, can improve employee job satisfaction, self-esteem and overall health, while reducing health risks.[29,30,31] Collecting stakeholder input through charrettes and establishing health-oriented goals early on, and utilizing post-occupancy surveys to ask occupants about their satisfaction with their environment, can help a project identify and meet objectives that support the health of all stakeholders while bringing employers significant returns on investment.[25,32,19,52, 35–37,59,38]Furthermore, supporting working caregivers through strategies like childcare support, workplace breastfeeding support, and paid parental leave can provide numerous benefits, including higher rates of breastfeeding, reduced infant mortality and long-term achievement for children.[39,40,41–46,47] Companies that foster civic engagement and espouse equitable and just treatment toward their workforce can increase employee attraction and retention, and improve financial returns, while building a diverse and inclusive culture.[48,49]Establishing an emergency management plan, and providing emergency resources like AEDs, first aid kits and preparedness trainings, is crucial to collective safety during emergencies.[50]Creating plans to support business continuity, remote work readiness and project re-entry after extended remote periods helps maintain business resilience and individual well-being during and after longer-lasting emergencies.[51,52]

In addition to health-promoting policies and programs, design plays a critical role in addressing the physical determinants of health and making buildings accessible and safe for all. Truly inclusive spaces both comply with accessibility codes and also incorporate universal design principles that enable people of all needs, abilities and identities to use a space.[53]Finally, incorporating affordable housing units can help improve overall health and provide a stable platform for the delivery of essential services for low-income populations.[9,11,13,14,54]

The WELL Community concept promotes the implementation of design, policy and operations strategies that focus on addressing health disparities and promoting social diversity and inclusion. Providing access to health services, inclusive and health-promoting policies, and design that enables all individuals to access, participate and thrive within a space can build a foundation for truly equitable, diverse and healthy communities.

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C01 HEALTH AND WELLNESS PROMOTION | P

Intent: Promote a deeper occupant understanding of the WELL features pursued by the project and of how building design, operations and policies impact health and well-being.

Summary: This WELL feature requires projects to provide a guide to occupants that highlights the WELL features pursued by the project, the relationship between health and buildings and available health resources and programs.

Issue: Health literacy refers to a person's cognitive and social ability to access, interpret and understand basic health information, as well as the ability to act on that understanding to maintain health.[1–4] Health literacy is influenced by sociocultural factors, such as age, socioeconomic status, mental health, cultural background, language and communication abilities, prior health experiences and how healthcare delivery and education systems deliver care, health information and health education.[1] Low health literacy is linked to lower use of preventive care (e.g., flu shots), poor management of chronic conditions (e.g., high blood pressure) and lower self-reported mental and physical health.[5,6] Studies estimate that low health literacy costs the U.S. economy anywhere between $70-240 billion each year.[5,7]

Solutions: Multi-modal programming, educational materials and communications can help promote health literacy and increase positive health outcomes.[8,9]By supporting awareness of health and wellness programs and policies, projects can promote health literacy and encourage engagement with health resources, leading to both individual benefits - like increased participation in healthy behaviors and use of health services - and also employer benefits, providing an estimated 4:1 return on investment.[5,10]

Part 1 Provide WELL Feature Guide

For All Spaces:

Option 1: WELL feature guide

A physical or digital WELL feature guide is prominently displayed and/or made widely available to all occupants, meeting the following requirements:

a. Describes the WELL features achieved by the project.

b. Explains how the WELL features achieved by the project impact occupant health, well-being and comfort and support the project's health-oriented mission in Part 2: Provide Health-Oriented Mission in Feature C02: Integrative Design.

Option 2: Communications

The following requirement is met:

a. Quarterly communications (e.g., emails, modules, trainings) are sent to regular occupants, and onboarding communications are given to new employees (as applicable), about health resources, programs, amenities and policies available to them addressed by the WELL features achieved by the project.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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C02 INTEGRATIVE DESIGN | P

Intent: Facilitate a collaborative project process and support adherence to collective wellness and sustainability goals.

Summary: This WELL feature requires project teams to facilitate an inclusive and collaborative planning and orientation process and to establish a health-oriented project mission.

Issue: Projects that do not consult stakeholders during planning and development processes often do not serve stakeholder needs and may even negatively impact the health and well-being of certain populations.[1,2] In particular, studies show that low-income and minority populations are most often excluded from planning discussions and decision-making, leading to developments that do not address their needs and may even increase their exposure to a disproportionate burden of poor health conditions, displacement, pollution, crime and lack of access to opportunities and services.[1,2]

Solutions: Engaging diverse stakeholders from the project onset creates the opportunity for collaborative dialogue between key decision-makers, planners and individuals who will be impacted by the project. Collecting stakeholder input can help a project identify and address its essential goals for health promotion and incorporate design that best celebrates the project's unique identity, culture and place, creating a space that meets the needs of all stakeholders and enriches the well-being of both occupants and visitors.[1,3,4] Establishing a health-centered mission and orienting stakeholders to how the project will adhere to that mission through design and operations, including WELL features, can help individuals remain engaged in the space and empower them to utilize all available health and wellness programs and policies.[5]

Part 1 Facilitate Stakeholder Charrette

For All Spaces:

Option 1: Stakeholder charrette

Early in the planning process, projects facilitate collaborative discussion with key stakeholders, including (as applicable): the owner, manager, facilities management team, architects, engineers, employees, occupants, residents, contractors and community members. The stakeholder discussion must address at minimum the following topics:

a. Health and well-being goals, including:
    1. Occupant health and well-being needs.
    2. The project's objectives for health promotion to meet stakeholder needs.
b. Environmental and sustainability goals, including how the project will:
    1. Reduce the project's contribution to global climate change and promote a greener economy.[1]
    2. Protect, enhance and restore water resources and ecosystem services.[1]
    3. Promote sustainable material cycles.[1]
    4. Enhance community through social equity and environmental justice.[1]

Option 2: Stakeholder orientation

The following requirement is met:

a. Following project completion, tours of the space are made available to new employees during onboarding, and to all stakeholders - including at minimum (as applicable) the owner, manager, facilities management team, architects, engineers, employees, occupants, residents, contractors and community members - that communicate how planned or existing building operations, maintenance, programs and policies will support adherence to WELL.

> **WELL Core Guidance:** Meet these requirements in the whole building.

Part 2 Promote Health-Oriented Mission

For All Spaces:

The project establishes a health-oriented mission that meets the following requirements:

a. Outlines the project's objectives for health promotion.[5]
b. Connects supporting and improving occupant health to the organizational objectives or mission statement.[5]

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c. Incorporates relevant project goals or strategies established during the stakeholder charrette.

d. Incorporates the ten WELL concepts: Air, Water, Nourishment, Light, Movement, Thermal Comfort, Sound, Materials, Mind and Community.

e. Health-oriented mission is made available to all occupants and is detailed in the WELL Feature Guide established in Part 1: Provide WELL Feature Guide in Feature C01: Health and Wellness Promotion.

WELL Core Guidance: Meet these requirements in the whole building.

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C03 EMERGENCY PREPAREDNESS | P

Intent: Enable organizations, families and individuals to prepare and respond to diverse emergency situations.

Summary: This WELL feature requires projects to undertake a risk assessment, create an emergency management plan for natural, human-caused, technological and health-related emergencies and educate occupants on the plan to support emergency preparedness and response.

Issue: Natural disasters kill around 90,000 people and affect close to 160 million people worldwide every year, with both an immediate and long-term impact on human lives and built spaces.[1] Older adults, individuals with disabilities, pregnant women and children may have special needs during an emergency and are particularly vulnerable when disaster strikes.[1] The U.S. Federal Emergency Management Agency estimates about 40-60% of small businesses permanently close following a disaster due to the lack of a comprehensive disaster preparedness plan with proper mitigation strategies.[2] Beyond natural disasters, infectious disease epidemics have increased in the 21st century, involving rapid global spread due to travel, trade and urbanization.[3,4] The COVID-19 pandemic infected six million people and spread to almost every continent within five months, impacting the social and economic livelihood of the global population on an incalculable scale.[5]

Solutions: An effective emergency management plan requires an understanding of potential local hazards, the needs of vulnerable groups, the responsibilities of the emergency response team and building response capabilities.[6] Emergency management plans, including risk assessments, occupant drills and enhanced emergency communications, can help organizations be better prepared to handle unforeseen events, minimize occupant confusion and improve coordination and safety during emergency situations.[3,7–11] Robust emergency preparedness and response measures can also help to slow the spread of infectious disease and minimize secondary mortality.[12]

Part 1 Develop Emergency Preparedness Plan

For All Spaces:

The following requirements are met:

a. A risk assessment is undertaken to address at minimum the following:
    1. Identify project assets (e.g., employees, facilities).
    2. Establish a pathway for occupants or groups who may be more vulnerable (e.g., older adults, people with disabilities, pregnant women, children) to confidentially identify specific needs they may have during an emergency.[13]
    3. Evaluate potential impacts of relevant hazards and identify high-risk hazards.
    4. Determine emergency management planning priorities.

b. An emergency management plan is in place outlining response in the case of emergency situations within the building or surrounding community, addressing at minimum the following hazards:
    1. Natural (e.g., flood, tsunami, wildfire, earthquake, heatwave).
    2. Fire.
    3. Health (e.g., acute medical emergency, infectious disease pandemic).
    4. Technological (e.g., power loss, chemical spill, explosion).
    5. Human-caused (e.g., civil unrest, active shooter, terrorism).

c. The emergency management plan meets the following requirements:
    1. Incorporates annual (at minimum) inventory and maintenance of building emergency response resources (e.g., first aid kits, automated external defibrillators (AEDs), emergency notification system, personal protective equipment) and operations capabilities (e.g., backup power, remote management systems).
    2. Includes a list of specialized personnel that is updated annually (at minimum) and includes roles and contact information of the emergency response team.[13]
    3. Plan is reviewed and updated (as needed) on an annual basis and is easily accessible to all regular occupants.

d. Regular occupants are provided education and training on emergency preparedness and response, including the following:
    1. Communications about the emergency management plan and related resources, including guidance by relevant local-, state-, regional- or global-level emergency response agencies (e.g., WHO, government

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emergency management agency or equivalent), annually (at minimum), to employees during new employee onboarding and during an emergency event.

2. Practice drills or other operations-based or discussion-based exercises conducted annually (at minimum) for each high-risk hazard identified in the risk assessment, and conducted every two years (at minimum) for other hazards covered under the emergency management plan.[13]

WELL Core Guidance: Meet these requirements in the whole building.

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C04 OCCUPANT SURVEY | P

Intent: Evaluate the experience and self-reported health and well-being of building users through occupant surveys.

Summary: This WELL feature requires projects to collect feedback from building users through third-party or custom surveys on their health, well-being and satisfaction with their environment, particularly on topics related to WELL strategies.

Issue: Given the wide diversity in the design, operation and use of built spaces, it is difficult to gauge which design, policy and programmatic approaches will benefit the health and well-being of the most individuals in a space.[1,2] For example, decision-makers and users of the space often experience things differently.[1] Employers do not often put methods in place to systematically gather input on the experience of their employees, such as satisfaction with policies, design and maintenance or feelings of overall health.[3,4,5]

Solutions: Surveys are an established tool for understanding and evaluating people's perceptions of indoor environmental conditions, wellness policies and personal health and well-being.[6–8] Psychometrically validated surveys and questions ensure that sensitive questions are framed appropriately and measure what they are intended to measure, and when combined with environmental satisfaction questions can effectively capture high-quality data.[9–12] Employees who perceive that their employer acts on their feedback are four times more likely to stay with their company; moreover, investing in the employee experience can reduce turnover and absenteeism and increase productivity, retention and engagement.[3,5] Surveys that ask building users about their satisfaction with indoor environmental quality and workplace wellness amenities and policies help evaluate the effectiveness of existing health and wellness interventions, identify opportunities to create a healthier environment and bring employers significant returns on investment.[5,12–14]

Part 1 Select Project Survey

For All Spaces:

Option 1: Third-party survey

For projects with ten or more eligible employees, the following requirement is met:

a. A survey is selected from one of the following pre-approved survey providers. More details may be found on IWBI's website (Reference).

   1. Occupant Indoor Environmental Quality (IEQ) Survey™ from the Center for Built Environment at UC Berkeley.
   2. Building Evaluation Survey Use Studies (BUS) Wellbeing Survey.
   3. Sustainable and Healthy Environments (SHE) survey from the University of Melbourne.
   4. Space Performance Evaluation Questionnaire (SPEQ), High Performance Environments Lab (HiPE), University of Oregon.
   5. Leesman Index.
   6. Occupant Comfort & Wellness Survey from the Institute for the Built Environment at Colorado State University.
   7. Comfortmeter.
   8. Healthy Building Index (HBI), from bba indoor environment & DGMR.
   9. Occupant Wellness Survey by Well Living Lab China.

OR

Option 2: Custom survey

For projects with ten or more eligible employees, the following requirement is met:

a. A survey is created that covers the topics listed in Appendix C1.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Administer Survey and Report Results

For All Spaces:

Option 1: Survey administration

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The following requirements are met:

a. All eligible employees are invited to participate in the survey annually. Regular reminders are sent to eligible employees to complete the survey.

b. Survey protects all participant-identifying data through appropriate protective measures such as anonymous reporting and safe data storage. Any communication of results should be on an aggregated basis, such that no participant can be identified.

c. Analysis of responses is conducted by a qualified survey professional.

Option 2: Result reporting

Annually, the project submits the following through the WELL digital platform:

a. Project and survey data, including:

    1. Total number of employees invited to complete the survey and number of employees who completed the survey.
    2. Date survey started and finished.
    3. Project location.
    4. Project type.
    5. Level of WELL Certification.
    6. Sociodemographic information (age and gender at minimum).

b. Aggregated, anonymized survey results.

> **WELL Core Guidance:** Meet these requirements for direct staff.

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C05 ENHANCED OCCUPANT SURVEY | O

WELL Certification: 4 Pt | WELL Core: 2 Pt

Intent: Build on minimum occupant survey requirements with enhanced and customized questions to comprehensively evaluate and respond to the experience and self-reported health and well-being of building users.

Summary: This WELL feature requires projects to build on minimum occupant survey requirements by collecting and responding to more in-depth and customized information from building users on their health, well-being and satisfaction with their environment including topics related to WELL strategies, both before and during occupancy.

Issue: Given the wide diversity in the design, operation and use of built spaces, it's difficult to gauge which design, policy and programmatic approaches will benefit the health and well-being of the most individuals in a space.[1,2] For example, decision-makers and users of the space often experience things differently.[1] Employers do not often put methods in place to systematically gather input on the experience of their employee, such as satisfaction with policies, design and maintenance or overall health.[3,4,5]

Solutions: Occupancy surveys measure the extent to which a building promotes user health and comfort.[6–8,9–11] Specifically, psychometrically validated surveys evaluate building users' experience, frame sensitive questions appropriately and measure what they are intended to measure.[12,13] Incorporating a range of survey topics, and utilizing both pre- and post-occupancy surveys, provides a comprehensive picture of which interventions impact building users' satisfaction.[11,14,15] Moreover, interviews and focus groups provide key insights not captured in surveys.[16,17,18] Stakeholders can use results to identify priority interventions to make spaces healthier and more productive.[19] Offering the opportunity to provide feedback, along with an action plan to address dissatisfaction, can improve employee morale and retention while creating a healthier environment for all.[5,20,21,22–25]

Part 1 Utilize Enhanced Survey

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For Office Spaces:

Option 1: Enhanced survey administration

For projects with ten or more eligible employees, the following requirements are met:

a. Meet Feature C04 Part 1 using Option 1.

b. Address at least one of the topics listed in Appendix C2 through at minimum three additional survey questions by working with one of the parties listed below. More details may be found on IWBI's website (Reference).

   1. The pre-approved survey provider selected in Feature C04 Part 1.
   2. BeWellLeadWell.
   3. OHFB-Afriforte.
   4. The Thrive XM Index.

Option 2: Result analysis and reporting

The project meets the following requirements:

a. Conduct enhanced analysis beyond descriptive statistics (e.g., correlations, inferential statistics such as multivariate analysis) of survey results.

b. Annually submit the following through the WELL digital platform:

   1. Aggregated, anonymized survey results for the additional topics selected from Appendix C2.
   2. Results of enhanced analysis.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Utilize Pre- and Post-Occupancy Survey

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Pre-occupancy survey administration

The project meets the following requirement:

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a. Administer a pre-occupancy survey using one of the following pre-approved survey providers and utilize the same provider in the post-occupancy survey in Feature C04 Part 1:

1. Occupant Indoor Environmental Quality (IEQ) Survey™ from the Center for Built Environment at UC Berkeley.
2. Building Evaluation Survey Use Studies (BUS) Wellbeing Survey.
3. Sustainable and Healthy Environments (SHE) survey from the University of Sydney.
4. Space Performance Evaluation Questionnaire (SPEQ), High Performance Environments Lab (HiPE), University of Oregon.
5. Leesman Index.
6. Occupant Comfort & Wellness Survey from the Institute for the Built Environment at Colorado State University.
7. Comfortmeter.
8. Healthy Building Index (HBI), from bba indoor environment & DGMR.
9. Occupant Wellness Survey by Well Living Lab China.

Option 2: Result analysis and reporting

The following requirements are met:

a. Compare results from the pre-occupancy survey against post-occupancy survey results.

b. Submit aggregated, anonymized pre-occupancy and post-occupancy survey results through the WELL digital platform on the following:

1. Aggregated, anonymized results of the pre-occupancy survey.
2. Comparison between the results of the pre- and post-occupancy surveys.
3. Total number of employees invited to complete the survey and number of employees who completed the survey.
4. Date pre- and post-occupancy surveys started and finished.
5. Location where the pre- and post-occupancy surveys were administered.
6. Project type.
7. Level of WELL Certification.
8. Sociodemographic information (age and gender at minimum).

> **Note:**
> Additional pre-occupancy survey is not required at recertification.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 3 Implement Action Plan

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

The project creates and implements a plan that addresses the following:

a. Aspirational satisfaction thresholds for post-occupancy survey responses.

b. Strategies for improving unmet satisfaction thresholds.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 4 Facilitate Interviews, Focus Groups and/or Observation

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Administration of interviews, focus groups and/or observation

The project annually conducts stakeholder interviews, focus groups and/or observation to discuss building features and wellness initiatives and their impacts on occupant health and well-being, meeting the following requirements:

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a. Interviews, focus groups and/or observation are conducted by a professional experienced in qualitative research.
b. Interviews, focus groups and/or observation protect participant identities.
c. A professional experienced in qualitative research analyzes interview, focus group and/or observation results.

Option 2: Result analysis and reporting

The project meets the following requirements:

a. Compare results from the interviews, focus groups and/or observation to the survey results from Feature C04: Occupant Survey or Feature C05: Enhanced Occupant Survey.
b. Annually submit aggregated, anonymized results of interviews, focus groups and/or observation through the WELL digital platform on the following:
    1. Comparison between the results of the interviews, focus groups and/or observation and the survey results from Feature C04 and/or Feature C05.
    2. Total number of employees and number of employees who participated in the interview, focus groups and/or observation.
    3. Date the interview, focus groups and/or observation started and finished.
    4. Project location.
    5. Project type.
    6. Level of WELL Certification.
    7. Sociodemographic information of participants (age and gender at minimum).

> **WELL Core Guidance:** Meet these requirements for direct staff.

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C06 HEALTH SERVICES AND BENEFITS | O

WELL Certification: 4 Pt | WELL Core: 2 Pt

Intent: Support the overall health and well-being of individuals and their families by offering comprehensive health benefits, policies and services.

Summary: This WELL feature requires projects to provide access to essential and on-demand health services, paid sick leave and seasonal influenza (flu) immunizations.

Issue: Access to basic healthcare services is one of five key pillars that form the social determinants of health.[1] Access includes physical or geographic access, affordability, and quality or acceptability of care, and access varies based on race, ethnicity, socioeconomic status, age, sex, disability status, sexual orientation, gender identity and location.[5,5,64,65] Unvaccinated individuals pose a risk to public health, and seasonal flu causes severe illness and death in high-risk populations, costing the U.S. $10.4 billion in annual healthcare costs; the average hospitalized flu case in Canada costs $11,092.[6–9] Delays between identifying a need for care and receiving services can increase complications, costs and hospitalization.[4,10] Moreover, while 94% of the world's countries mandate paid sick leave, the U.S. and Korea are the only OECD countries that do not, and 40% of American employees have no sick leave.[11,12] Studies estimate that 20 million Americans and 37% of employees in the United Kingdom go to work sick because they lack sick leave or have only one-day sick leave, respectively, infecting colleagues as a result.[13,14] Employees may also go into work when sick if their sick leave does not offer sufficient wage replacement.[13]

Solutions: Basic essential healthcare services include medical, dental, vision, mental health, substance use, preventive screenings, disease management and biometric assessments.[4] Providing free on-site flu vaccines with education on good health habits can increase vaccination rates and reduce flu cases.[15] Providing timely access to health services can relieve both actual and perceived barriers to care.[4,16] Studies demonstrate that the overwhelming majority of employees seek one-on-one benefits consultation and flexible coverage options so they can opt into coverage that best meets their individual schedule and health needs.[17] Studies also show that implementing paid sick leave reduces contagion in the workplace, improves employee productivity and reduces employee turnover.[13,14,18–20] Overall, enhancing access to essential healthcare and paid sick leave can help improve the physical, social and mental health of individuals and communities.[2,4]

Part 1 Promote Health Benefits

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Health benefits plan

The following requirements are met:

a. A health benefits plan is available to all eligible employees and their designated dependents (e.g., spouse, domestic partner, child, parent, parent-in-law, grandparent, grandchild, sibling) at no cost or subsidized that includes the following services:

    1. Medical care.
    2. Dental care.
    3. Vision care.
    4. Mental health and substance use services.
    5. Sexual and reproductive health services, including obstetrics and gynecology (OB-GYN) services and sexually transmitted infection (STI) testing and treatment.
    6. Medication/prescription coverage.
    7. Essential immunizations based on region.
    8. Preventive screenings and biometric assessments.
    9. Tobacco cessation programs.
    10. Infectious disease testing (e.g., tuberculosis, malaria, COVID-19) during a regional or global infectious disease outbreak, epidemic or pandemic as declared by a regional or global public health agency (e.g., WHO, disease control and prevention centers or equivalent).

b. Confidential benefits consultations are available with clearly identified and qualified support staff (e.g., benefits counselor, human resources representative).

Option 2: Community immunity

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The following requirements are met:

a. Projects provide one of the following vaccine programs at no cost to regular occupants:
    1. Annual on-site seasonal influenza (flu) vaccine starting at least one month prior to peak flu season in the project region.[15]
    2. Health insurance coverage or voucher for flu vaccination, including paid time during the workday to receive immunization for seasonal influenza.[21]
b. Vaccine program is accompanied by a seasonal flu prevention campaign that covers the following:
    1. Alerts regular occupants regarding the availability of on-site flu vaccine clinic, coverage or vouchers and encourages or incentivizes individuals to receive the vaccine.[15]
    2. Educates regular occupants on the health reasons to receive the vaccine and good hand hygiene and cough etiquette, and instructs them to stay home when experiencing flu-like symptoms.[15]

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Offer On-Demand Health Services

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Health services are provided for all eligible employees at no cost or subsidized, on-site, in-person within 0.25 mi(400 m) of the project boundary or through a telemedicine provider or digital health platform, and meet the following requirements:

a. Experienced and qualified healthcare providers (e.g., physician, nurse practitioner, physician assistant) are available to provide confidential medical treatment for episodic, recurrent, urgent or other illnesses before, during and/or after regular business hours.
b. A scheduling system allows for drop-ins and/or appointment booking. If services are only available during regular business hours, then eligible employees are allowed to use services during the workday.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 3 Offer Sick Leave

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Short-term sick leave

Employers provide a short-term sick leave policy for all eligible employees, distinct from paid time off and family leave, that includes the following:

a. At least 10 days of sick leave are paid at 50% or higher of the employee's full salary or wages, offered through a flat rate or annual accrual, during any 12-month period for an acute, chronic or serious health condition.
b. Statement that discourages employees from coming into work when they feel sick, and from doing work while on sick leave.[22]
c. Does not require a note from a medical professional or advance notice to gain approval for sick leave unless employee uses more than three consecutive days of sick leave.

Option 2: Long-term sick leave

Employers provide a long-term sick leave policy for all eligible employees, distinct from paid time off and family leave, that includes at least one of the following:

a. At least 12 weeks of sick leave (which may be unpaid) during any 12-month period for a chronic or serious health condition that involves inpatient care in a hospice or residential healthcare facility (e.g., stroke, infectious disease, surgery) or continuing treatment and/or supervision by a healthcare provider (e.g., diabetes, asthma, terminal cancer).
b. One or more of the following to support all eligible employees recovering from serious health conditions:
    1. Part-time options.
    2. Work from home flexibility.

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3. Flexible schedules.

WELL Core Guidance: Meet these requirements for direct staff.

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C07 ENHANCED HEALTH AND WELLNESS PROMOTION | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Cultivate a culture that prioritizes and promotes the health and well-being of all individuals.

Summary: This WELL feature requires projects to cultivate a culture of health through communications, health promotion programs and executive-level leadership.

Issue: Workplaces have the potential to promote and encourage healthy behaviors; however, if employees are unaware of the health promotion opportunities available, they are unlikely to participate.[1,2] Moreover, studies of organizations with successful workplace wellness programs demonstrate that isolated incentives or programs, or even just health-promoting physical environments alone, will not be effective in promoting employee health or engaging employees in healthy behaviors unless they are part of an overarching culture of health integrated into everyday operations.[1]

Solutions: The Robert Wood Johnson Foundation defines a culture of health as "a society that gives all individuals an equal opportunity to live the healthiest lives possible, whatever their ethnic, geographic, racial, socioeconomic or physical circumstances happen to be."[3] Organizations can build a culture of health through customized health promotion programs that are integrated into operations and business strategy, promoted through consistent communications, championed by leadership at all levels and given dedicated resources.[4,5] Incorporating incentives can raise employee participation and motivate behavior change such as weight loss and smoking cessation.[6] Medical and absenteeism costs fall by about $3.27 and $2.73, respectively, for every dollar spent on workplace health programs.[6] Successful health promotion programs can improve job satisfaction, sense of well-being, self-esteem and health status, and reduce stress and health risks.[7,8] Organizational benefits include lower healthcare costs and absenteeism and improved productivity, recruitment, retention, culture and employee morale.[7,8]

Part 1 Promote Culture of Health

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Health promotion strategies

Occupant health and well-being is promoted through the following:

a. Monthly digital communications to employees and/or regular occupants (as applicable) that address the following:
    1. Reinforce the project's culture of health.
    2. Market health promotion policies and programs.
    3. Highlight stories from regular occupants (as applicable) who exemplify the project's health culture.
    4. Offer education (e.g., tips and resources created by the project or a third party) on at least two topics within the ten WELL concepts.[9]
b. Quarterly education sessions (e.g., workshops, lectures, seminars) that offer instruction on topics within the ten WELL concepts, covering at least two different concepts per year.

Option 2: Health promotion coordinators

One of the following is present:

a. Health promotion group that meets at least quarterly, is actively involved in planning and implementing health promotion programs and policies and seeks to cultivate a culture of health in the project.[9]
b. Paid mid- or senior-level employee that plans and implements health promotion programs. Health promotion must be part of their job description, requirements and/or performance expectations.[9]Projects that meet Part 2 Health Promotion Leader automatically fulfill this requirement.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Establish Health Promotion Leader

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

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For All Spaces:

The following requirements are met:

a. Project has at least one dedicated executive-level employee whose primary responsibility is to plan and oversee strategies that promote the physical, mental and emotional health and well-being of all employees (e.g., Chief Wellness Officer). The individual must be employed at the executive (C-Suite) level or report directly to a member of the executive (C-Suite) team.

b. Executive-level employee's job description and performance expectations must include the following:

    1. Established metrics or KPIs for promoting organizational health and well-being that are linked to employee's performance evaluation.
    2. At minimum annual reports by the employee on the progress of health promotion strategies and employee engagement to the executive (C-suite) team, Board of Directors and/or equivalent high-level stakeholders.

c. Executive-level employee is supported by at minimum one employee who helps plan and implement health promotion programs and policies.

> **WELL Core Guidance:** Meet these requirements for direct staff.

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C08 NEW PARENT SUPPORT | O

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

Intent: Provide support for new parents to properly care for themselves and their children.

Summary: This WELL feature requires paid parental leave for primary and non-primary caregivers and supportive resources for parents returning to work.

Issue: Maintaining an infant's health before birth and during its first months of life is crucial to its long-term health.[1] Though infant care is a universal need, and most countries guarantee a minimum paid maternity leave, many do not offer paid partner leave, and when they do, it is often significantly shorter in duration.[2] Additionally, shorter and unpaid maternity leave may create barriers to accessing necessary healthcare such as postpartum healthcare, which is critical to receive in the first six weeks after childbirth to support new mothers' health.[3]

Solutions: The International Labor Organization recommends a minimum of 18 weeks of parental leave, with research indicating that 40 weeks of paid leave results in the greatest overall reduction of risk for low infant birth weight and infant mortality and results in higher rates of on-time infant immunizations.[1,4,5] Longer paid parental leave and back-to-work coaching programs are associated with numerous health benefits, including higher rates of breastfeeding, reduced infant mortality and postpartum depression, decreased risk of low birthweight infants and higher paternal involvement, as well as higher long-term achievement for children, including reduced school drop-out rates and increased medical appointment attendance.[4,6–10] Moreover, research shows that parental leave of up to a year (52 weeks) can help improve job continuity for women even years after childbirth.[11,12] Research also demonstrates that fathers who take paid leave of at least two weeks are far more engaged in childcare nine months after birth.[13] Organizational support for new parents can also increase employee retention and company loyalty.[14]

Part 1 Offer New Parent Leave

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

For All Spaces:

Option 1: Parental leave

The project provides a policy for all eligible employees that meets the following requirements:

a. At least 40 weeks of parental leave are offered to the designated primary caregiver and/or the birthing parent during any 12-month period to use non-consecutively during pregnancy or within the first three years of a child's life.[4,15]

b. At least some portion of the primary caregiver's and/or the birthing parent's parental leave is paid per the table below. Paid parental leave is offered to the designated primary caregiver during any 12-month period during pregnancy, after birth or for the adoption or fostering of a child. Paid leave must be separate from other types of leave (e.g., sick leave, paid time off), paid at 75% or higher of the employee's full salary or wages and cover benefits. Leave may be used non-consecutively during pregnancy or within the first three years of a child's life.[15]

c. At least two weeks of paid parental leave are offered to the non-primary caregiver per the table below. Paid leave must be separate from other types of leave (e.g., sick leave, paid time off), paid at employee's full salary or wages and cover benefits, and may be used non-consecutively during any 12-month period during pregnancy, after birth or for the adoption or fostering of a child.[13,16]

Weeks of Paid Primary Caregiver Leave		Weeks of Paid Non-Primary Caregiver Leave	Points
At least 12 weeks	AND	At least 2 weeks	1(0.5)
At least 18 weeks[5,17]	AND	At least 3 weeks	2(1)
At least 30 weeks[4,11]	AND	At least 4 weeks	3(1.5)

Option 2: Parental support policies

The project offers at least two of the following services to help employees utilize and return from leave:[4,6–9]

a. Policy covering at least one of the following:

   1. Part-time options (e.g., ramp back programs).
   2. Work from home flexibility.
   3. Flexible schedules.

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b. Communications (e.g., emails, modules, trainings) sent to expecting parents about the project or organization's parental leave policies and supporting resources, including guidance on the positive health impacts of parental leave.

c. Coaching program, counseling or other resources to help employees transition when returning from leave.

d. Training for managers on how to work with employees to create a plan for leave and optimally support employees returning from leave.

WELL Core Guidance: Meet these requirements for direct staff.

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C09 NEW MOTHER SUPPORT | O

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

Intent: Provide spaces and policies that encourage and support breastfeeding.

Summary: This WELL feature requires the provision of dedicated lactation rooms with supportive amenities, as well as paid break times, travel accommodations and resources to help mothers initiate and sustain breastfeeding.

Issue: New mothers represent a significant segment of the global labor force, and postpartum care is essential to the health of breastfeeding women and their babies.[1,2] Research shows that a lack of workplace accommodations contributes to shorter breastfeeding duration or leads to a drop in milk supply, resulting in early weaning.[2] Nursing parents need a safe, private space with essential amenities to continue breastfeeding or pumping after returning to work.[2,3] Breastfeeding can help reduce postpartum weight retention and also the risk of breast and ovarian cancer, and is recommended by the World Health Organization, United Nations Children's Fund and American Academy of Pediatrics to support optimal growth and development in infants.[4–8] The WHO recommends exclusive breastfeeding of infants up to six months of age, which reduces rates of asthma, allergies and ear infections among children and decreases rates of maternal depression.[9,10]

Solutions: Supportive breastfeeding programs - such as schedules that provide time for pumping or direct breastfeeding - lactation counseling and travel accommodations can help nursing mothers initiate and sustain breastfeeding.[2,11] Lactation rooms that promote a comfortable, calm and private space, optimize thermal and acoustic comfort and maximize accessibility needs can support the needs of each individual.[12] Breastfeeding programs can decrease healthcare expenses, reduce employee absences associated with caring for a sick child and increase female employee retention.[13]

Part 1 Offer Workplace Breastfeeding Support

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Option 1: Pumping support

The following are in place for eligible employees:

a. Paid break times for pumping, at least 15-20 minutes every 2-3 hours (or 2-3 pumping sessions per eight-hour workday), with adjustments as necessary to meet the needs of individuals.[12]

b. One-time coverage or a subsidy of at least 50% for the purchase of a portable breast pump and/or availability of hospital-grade electric pump for multiple users.[13]

c. Postpartum lactation counseling, including back-to-work lactation counseling, offered at no cost or subsidized by at least 50%, to support the transition from leave to work.[13]

Option 2: Travel accommodations

The following accommodations are made for eligible employees who are breastfeeding while traveling for business:

a. For all trips, breastfeeding employees are provided an insulated cooler at no cost or reimbursement to cover its cost.

b. For all overnight trips lasting longer than 24 hours, breastfeeding employees are booked in hotels (or other overnight accommodations) with refrigerator access.

c. For trips lasting longer than 48 hours, employer provides coverage for breast milk shipping service (i.e., expressed milk shipped home).

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Design Lactation Room

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

The project provides at least one dedicated lactation room for employees that meets the following requirements:

a. Is at least 7 ft x 7 ft(2.1 m × 2.1 m).[12]

b. Includes at minimum the following:

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1. Work surface and comfortable chair.[12]
2. At least two electrical outlets.[12]
3. User-operated lock with occupancy indicator (e.g., signage).[12]
4. System in place for room booking (designed in consideration of occupant privacy, such as a number system instead of occupant name).[12,13]
5. Access to sink, faucet, paper towel dispenser and soap (not required to be located in lactation room but may not be located in a bathroom).[12]
6. Access to a refrigerator, with dedicated, sufficient space for milk storage based on assessment of occupant storage need, in the lactation room.[12]
7. Dedicated storage space for pumping supplies.[12]

c. Provides a calming and comfortable environment addressing at minimum:

1. Sound minimization.[72]
2. Ambient lighting.[72]
3. Thermal comfort.[72]

d. Present in a quantity that meets current and anticipated employee demand.[13]

WELL Core Guidance: Meet these requirements for direct staff.

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C10 FAMILY SUPPORT | O

WELL Certification: 3 Pt | WELL Core: 1.5 Pt

Intent: Support working parents and caregivers so that they are able to properly care for members of their family.

Summary: This WELL feature requires projects to offer policies and programs that facilitate childcare and family leave.

Issue: Millions of working individuals take on the role of caregiver for their children, dependents and family members; with the rapidly growing population of older adults, the number of working caregivers will continue to rise.[1] Caregivers often have to adjust their work schedules or take time off, which can significantly impact productivity due to increased absenteeism, workday interruptions and unpaid leave.[2] An estimated 9% of caregivers left their jobs as a result of having to balance caregiving responsibilities with work obligations.[2,3] Employers that fail to meet the needs of caregiving employees can see reduced company productivity due to increased absenteeism, workday interruptions and unpaid leave, resulting in an annual average loss of 3.4 billion, 2.8 billion and 1.4 billion dollars, respectively.[2]Moreover, the loss of a loved one has been associated with higher risks of mortality, physical health problems leading to disability and hospitalization, and psychological stress like insomnia, depression and anxiety.[4,5] Grief is also tied to productivity loss: in the U.S., grief-inducing experiences cost employers an annual average of $75 billion in lost productivity and lost business.[6]

Solutions: By offering a range of accommodations, employers can create a supportive culture that meets the diverse needs and caretaking responsibilities of employees.[3] On-site childcare that supports flexible schedules can help working parents balance family needs and work demands. Flexible work arrangements can help retain and attract employees while also improving employee productivity and engagement.[3] Additionally, financial assistance, support groups and referral to community services can help individuals manage the unique challenges associated with being a caregiver.[7] Providing employees sufficient time away from work to grieve, in addition to grief counseling and other support, can help reduce employee anxiety, depression and other health risks over time.[4,8]

Part 1 Offer Childcare Support

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

The project provides at least three of the following:

a. On-site childcare centers compliant with local childcare licensure, or subsidies of at least 50% for off-site or at-home childcare, for regular occupants.[9]

b. Back-up childcare coverage for regular occupants in case of unexpected events, at no cost or subsidized by at least 50% (e.g., drop-in daycare, overnight childcare, in-home babysitting service, virtual childcare service).[10]

c. Seasonal childcare programs (e.g., center- or home-based care during school break or winter holidays) for regular occupants with school-age children.[10]

d. Policy allowing all employees to use paid sick time, family leave or personal days for the care of a child.

e. Policy covering one or more of the following to support all eligible employees with children:

    1. Part-time options.
    2. Work from home flexibility.
    3. Flexible schedules.[7]

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Offer Family Leave

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Employers provide the following for all eligible employees:

a. At least 12 weeks of leave, paid at 75% or higher of the employee's full salary or wages, during any 12-month period for the care of a spouse, domestic partner, child, dependent, parent, parent-in-law, grandparent, grandchild, sibling or other designated relation with a chronic or long-term serious health condition, including an illness, injury, impairment or physical or mental health condition, that involves one of the following:

    1. Inpatient care in a hospital, hospice or residential healthcare facility (e.g., stroke, infectious disease, PTSD).

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2. Continuing treatment and/or supervision by a healthcare provider (e.g., diabetes, asthma, terminal cancer).[11]

b. The option to use paid sick time or personal days for the care of a spouse, domestic partner, child, dependent, parent, parent-in- law, grandparent, grandchild or sibling.

c. Policy covering one or more of the following to support all eligible employees caring for a spouse, domestic partner, child, dependent, parent, parent-in-law, grandparent, grandchild, sibling or other designated relation:

1. Part-time options.
2. Work from home flexibility.
3. Flexible schedules.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 3 Offer Bereavement Support

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

Employers provide bereavement support for all eligible employees, including, at minimum, the following:

a. Protocol for notifying employers of the loss.

b. At least 20 days of bereavement leave offered as follows:

1. At least five days of paid leave during any 12-month period for the loss of a child, spouse, parent or dependent.[12,13]
2. At least three days of leave, paid at 75% or higher of the employee's full salary or wages, during any 12-month period for the loss of a family member, colleague or friend.[12,13]
3. Additional unpaid weeks of leave during any 12-month period, granting employees a minimum total of 20 days of leave to use at any point in the bereavement process. The days of paid leave may be counted toward the 20 days.

c. Bereavement support resources, including:

1. Resources on coping with grief, including resources for returning to work after a loss.[8,14]
2. Information on accessing local bereavement support services.[8,14,15]

d. Coverage for bereavement counseling services at no cost or subsidized by at least 50%.

> **WELL Core Guidance:** Meet these requirements for direct staff.

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C11 CIVIC ENGAGEMENT | O

WELL Certification: 2 Pt | WELL Core: 1.5 Pt

Intent: Encourage individuals to become actively involved in and connected to the surrounding community through volunteerism, public spaces and community programming.

Summary: This WELL feature requires a commitment to civic engagement through charitable activities, designated public spaces and community engagement programs.

Issue: Millennials represent an increasingly large segment of the workforce, yet surveys find that one in four millennials plan to quit their current employer in the next year due to the perception that their company's goals do not extend beyond profit.[1] Companies that do not demonstrate stronger social values through civic engagement opportunities, like community volunteering, have been shown to experience lower employee morale, engagement and productivity.[2] Moreover, research in the U.S. reveals a decline in community social support and relations, with people who feel disconnected from their community encountering more mental health issues than those with a strong community connection.[3–5]

Solutions: It is essential for companies to consider the link between corporate social reputation and talent attraction.[6] Scheduling volunteer opportunities, providing paid volunteer time off, matching employee charitable contributions and working with local community organizations can foster a culture of social responsibility, enhance employee retention and make a positive contribution to the local community.[1,2,7,8] There are a variety of ways to increase opportunities for civic engagement and establish a culture of social responsibility. Moreover, projects that provide public use spaces and community programming can encourage social interaction and cohesion, community empowerment and collective feelings of ownership, reducing community health risks like stress, depression, heart disease, stroke and chronic disease and improving physical and mental health, happiness and healthy behaviors.[3,5,9–12]

Part 1 Promote Community Engagement

WELL Certification: 1 Pt | WELL Core: 0.5 Pt

For All Spaces:

At least two of the following requirements are met:

a. All eligible employees are given the option to take paid time off to participate in volunteer activities for at least 16 hours of paid time annually (separate from vacation, sick or other paid time off).

b. Projects provide a list of volunteer opportunities in the project area and community, with at least one opportunity per month that would be suitable for employees, and with at least eight hours organized by the employer for a registered charity or non-profit.

c. Projects contribute annually to a registered charity of employee's choice to match employee donations, up to a maximum amount defined by the employer.

d. Projects provide at least one community engagement program, such as events, talks, workshops, trainings or other public engagement intended to promote education, play, physical activity, social connection and/or well-being, at no cost to the public on a quarterly basis.[3,13,14] Programs may be offered on- or off-site and must be open to all regular occupants.

> **WELL Core Guidance:** Meet these requirements for direct staff.

Part 2 Provide Community Space

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Community space

Designated outdoor or indoor space is made available to the public at no cost that meets the following requirements:

a. Is at least 2,000 ft^2(186 m^2).[15]

b. Open at all times, unless closed for security purposes (e.g., during nighttime hours) or for special events.[15]

c. Signage or other communication clearly indicates hours the space is open and the space's designation for public use.[15]

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d. Provides quality seating areas and is easily navigable for individuals of all abilities.[15,16]

OR

Option 2: Meeting space

Access to one or more indoor or outdoor spaces within the project boundary is provided to the public, such as local community groups, student clubs or non-profit organizations, at no cost that meets the following requirements:

a. Has the capacity to hold to least 10 people.

b. Is available for meetings and events on a weekly basis at minimum.[3,13,14]

> **WELL Core Guidance:** Meet these requirements in the whole building.

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C12 DIVERSITY AND INCLUSION | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Promote an equitable culture through the implementation and disclosure of diversity and inclusion policies and initiatives.

Summary: This WELL feature requires projects to implement and report on internal policies and programs that promote diversity and inclusion, such as anti-discrimination and wage equity policies, anti-bias training and employee resources groups.

Issue: Global companies in the top quartile for racial and ethnic diversity or gender diversity are 35% or 15% more likely to have financial returns above their national industry medians, respectively.[1] Yet only 55% of companies in the United States report racial diversity as a top priority, and only 4% use blind resume reviews.[2,3] Additionally, for every 1% rise in U.S. workforce ethnic diversity, there is a 9% rise in sales revenue, and for every 1% rise in gender diversity, there is a 3% rise.[4] However, barriers to career advancement are still more severe for women, and women earn less than men: in the United Kingdom, for example, women's earnings are only 80.2% of men's.[3,5] Moreover, diversity extends beyond gender and race to socioeconomic background, physical ability, gender identity and other factors. Yet many organizations do not consider this; for example, in industrialized countries, 50-70% of persons with disabilities of working age are unemployed, and 35% of LGBT employees in the United Kingdom hide that they are LGBT at work in fear of discrimination.[6,7]

Solutions: Addressing diversity in the workplace is complex and touches upon all of an organization's operations, including hiring practices, determination of salary and wages, workplace culture and organizational structure. Projects that promote diversity in the workplace and espouse fair, equitable and just treatment toward their workforce through measurable actions drive both profit and positive culture, by reducing employee stress and increasing employee satisfaction and loyalty.[4]

Part 1 Promote Diversity and Inclusion

WELL Certification: 3 Pt | WELL Core: 3 Pt

For All Spaces:

Option 1: Third-party program (1 point)

Projects meet the following requirements:

a. The project or organization participates in an approved third-party certification or reporting program listed on IWBI's website (Reference).

b. Results are made publicly available on-site and/or on the organization's website.

OR

Option 2: Custom program

The project or organization meets at least three of the following requirements per the table below through a custom internal program, reviewing policies and trainings annually to remove identified areas of bias:

Number of Requirements Achieved	Points
Three	1
Four	2
Five	3

a. A comprehensive evaluation of the project or organization's current diversity representation is conducted, and goals for improvement are established and annually tracked, that include at least four of the following diversity types:

   1. Gender (assigned, identity and/or expression).
   2. Sexual orientation.
   3. Race/Ethnicity.
   4. Age.
   5. Socioeconomic background.

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6. Level of ability.
7. Other metric(s) as identified by the project or organization.

b. A comprehensive diversity, inclusion and non-discrimination policy is established and made available to all employees that meets the following requirements:

1. Connects diversity and inclusion to the project or organization's goals and objectives, including the project's health-oriented mission, considering many aspects of diversity including at minimum: ethnic, racial, gender and gender identity, cultural, neurological, ability and age.
2. Includes a hiring policy that bans the request of salary history and requires blind resume reviews (i.e., at minimum removes information such as name and home address that could indicate factors such as race/ethnicity, gender and socioeconomic background).
3. Establishes employee evaluation protocols with equitable and transparent performance standards.
4. Connects diversity and inclusion goals to performance evaluation for hiring managers.
5. Incorporates reporting protocol that allows occupants to anonymously report observed or experienced discrimination, and that requires follow-up review by a human resource professional with the offending individual to help reduce bias and mitigate future incidents.
6. Incorporates penalties for falsifying or retaliating against reports of bias.
7. Establishes annual goals for diversity representation in mid- and executive-level leadership positions.
8. Results of progress on diversity and inclusion goals are made widely available to all occupants and publicly available on-site and/or on the organization's website. Goals for improvement of diversity and inclusion policies and outcomes are established and reviewed on an annual basis.

c. A comprehensive wage equity policy is made available to all employees that includes at least four of the following:

1. Determination of wages independent of gender, race, ethnicity, religion, disability status, sexual orientation or any identifying factor that is not professionally relevant.
2. Provision of a living wage to all employees, determined based on local cost of living.
3. Commitment to wage transparency by listing salaries or salary ranges for individuals or titles.
4. Annual evaluation of wages to ensure pay equity and compensation scale equity.
5. Annual trainings or workshops on salary and contract negotiation made available to all employees.

d. Annual trainings are made available to all employees that highlight the benefits of diversity and instruct on preventing, identifying and navigating observed or experienced discrimination, and on preventing, identifying and reducing bias.

e. Employee resource groups and/or sponsorship programs are in place to support diverse population groups (e.g., women, ethnic minorities, veterans, individuals with disabilities, LGBTQA individuals).

f. Annual reports on (at minimum) diversity representation at all levels, employee engagement, wages – including pay equity, compensation scale equity and living wage – and diversity and inclusion policies are made widely available to all occupants and publicly available on-site and/or on the organization's website.

g. Project has at least one dedicated executive-level employee whose primary responsibility is to plan and oversee strategies that promote diversity and inclusion (e.g., Chief Diversity Officer). The individual must be employed at the executive (C-Suite) level or report directly to a member of the executive (C-Suite) team.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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C13 ACCESSIBILITY AND UNIVERSAL DESIGN | O

WELL Certification: 2 Pt | WELL Core: 3 Pt

Intent: Provide buildings that are accessible, comfortable and usable for people of all backgrounds and abilities.

Summary: This WELL feature requires projects to go above and beyond accessibility laws and/or codes by integrating universal design principles to accommodate diverse needs and create a fully inclusive environment.

Issue: More than one billion people, or about 15% of the global population, live with some type of disability.[1] Among this population, nearly 200 million individuals experience difficulties in functioning within the built environment, yet many environments are not designed with consideration of people with disabilities.[1,2] Moreover, by 2050, the global population of individuals aged 60 years and older is expected to total two billion, while children between the ages of 10-19 years currently make up 16% of the world's population.[3,4] An estimated one in six people experiences a mental health issue, ranging from depression and anxiety to bipolar or personality disorders, each week.[5] Buildings host a wide array of individuals from these diverse communities, yet despite the profound impact design can have on who is able to access, use and interact with a space, many environments are not designed with consideration of diverse individual needs or abilities.[1,6]

Solutions: Spaces and places that are truly inclusive are not limited to compliance with local code.[7] Rather, they invite diverse individuals to use the space. Universal design addresses multiple aspects of a built space, including infrastructure, signage and technologies, and seeks to enhance the opportunity for all individuals to exist independently and comfortably in that space.[8]

Part 1 Integrate Universal Design

WELL Certification: 2 Pt | WELL Core: 3 Pt

For All Spaces:

The project considers best practices in universal design to accommodate a diverse range of occupant abilities and needs throughout the project, by implementing at minimum one design, operations or policy strategy in each of the following categories:[9]

a. Physical access: entry, exit and key interaction points that enable inclusive entrance to the project and strategies that enable flexible usability of the space to accommodate change as needed (e.g., stair-free entrances, step-free egress, operable windows, automatic doors).[1,7,10]

b. Developmental and intellectual health: strategies that use color, texture, images and other multi-sensory visually perceptible information (e.g., to accommodate sensory requirements of neurodiverse individuals).[1,10,11]

c. Wayfinding: strategies that help individuals intuitively navigate through the project (e.g., signage, tactile maps, symbols, auditory cues, information systems).[10]

d. Operations: operational policies and programs that support inclusion and accommodate a diverse range of needs (e.g., diversity and inclusion training, flexible work hours for individuals with disabilities).[1,7,10]

e. Technology: technology (e.g., audio and visual equipment, web access) that helps individuals fully utilize a space (e.g., to assist blind or deaf individuals, or those who do not speak the native language), made available to all occupants at no cost.[1,7,10]

f. Safety: strategies that support easy access to all spaces and amenities and minimize risk of injury, confusion or discomfort (e.g., lighting or clear sightlines to increase feelings of security).[1,10,11]

> **WELL Core Guidance:** Meet these requirements in the whole building. Projects may only count design elements that are in place at the time of certification. Items installed by tenants or after certification are not considered.

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C14 EMERGENCY RESOURCES | O

WELL Certification: 2 Pt | WELL Core: 4 Pt

Intent: Provide resources, personnel and training to help organizations, families and individuals respond to diverse emergency situations.

Summary: This WELL feature requires projects to offer resources like first aid kits, automated external defibrillators (AEDs) and opioid response kits, coordinate with emergency response teams and provide emergency preparedness and response trainings.

Issue: It is estimated that sudden cardiac arrest (SCA) causes between 6.8 – 8.5 million deaths worldwide per year, with a global survival rate of less than 1%; in the United States, about 10,000 SCA deaths per year occur in the workplace.[1,2] An SCA victim's chances of survival lower by 7-10% with every minute that passes without cardiopulmonary resuscitation (CPR) or defibrillation.[3] Additionally, nearly 16,000 people worldwide die from preventable injuries each day, yet in most European countries, only 5-10% of the population is trained in first aid.[4,5] While natural disasters kill an average of 90,000 people annually, nearly 60% of American adults have not practiced what to do in a disaster.[6,7]Moreover, anaphylaxis causes up to 1,500 deaths per year in the U.S., with studies showing a delay in administering epinephrine to be a significant risk factor associated with fatal outcomes from allergen exposure.[8–10] Finally, drug overdose is the leading cause of accidental death in the U.S., with overdose from opioids driving the epidemic.[11]

Solutions: Rapid and effective emergency response requires coordination with local emergency responders and maintenance of emergency resources such as an emergency notification system, first aid kits and AEDs.[12,13] Supplementing those resources with occupant training on CPR, first aid, AED use and individual and family preparedness can increase individual response time and help improve survival rates; CPR and AED training alone can increase victim survival rates by nearly 40%.[3,12] In food allergy emergencies, quick access to and immediate availability of epinephrine is essential.[10,14] Finally, increasing the availability of naloxone is a critical component of reducing opioid-related overdose deaths, with evidence suggesting that when naloxone and overdose education are available to community members, overdose deaths decrease in those communities.[15]

Part 1 Promote Emergency Resources

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Emergency resources

Resources are in place that support emergency response, including at least three of the following:

a. Information indicating emergency procedures (e.g., evacuation during fire or earthquake, containment and response strategies for infectious disease outbreaks, shelter-in-place during active shooter) available to all guests upon entrance to the building.

b. Building emergency notification system with auditory and visual indicators of emergency (e.g., public address systems, flashing lights).

c. At least one first aid kit per floor meeting requirements of Appendix C3.

d. AEDs accessible to any occupant within 3-4 minutes[16] and adoption of routine maintenance and testing schedule.[17,18] The locations of building AEDs are identified through posters, signs or other forms of communication other than on the AED itself.[17]

e. Undesignated epinephrine auto-injectors for food allergy emergencies.[14]

f. Rides subsidized by at least 50% to destination of need for emergency situations (e.g., urgent medical needs, personal or family emergency), including from home to work as needed (e.g., during public transit shutdown).

Option 2: Emergency training and personnel

At least two of the following are in place:

a. Emergency response team for medical emergencies, including at least one certified medical professional (e.g., Emergency Medical Technician, paramedic) or first responder (e.g., police, fire service, individuals certified in advanced first aid) present within the building during regular business hours.[17,18]

b. Security or crisis response team for human-caused disruptions (e.g., active shooter, civil unrest).

c. Annual availability to regular occupants of a certified training course on CPR, first aid and AED usage.[17]

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d. Trainings to promote individual and family emergency preparedness available to regular occupants that addresses at least the following topics:

    1. Creating evacuation or sheltering plans.
    2. Building emergency kits, supplies and go-bags.
    3. Planning communications with family or primary contacts in case of emergency.

> **WELL Core Guidance:** Meet these requirements in the whole building.

Part 2 Provide Opioid Response Kit and Training

WELL Certification: 1 Pt | WELL Core: 2 Pt

For All Spaces:

Option 1: Opioid response kits

The following requirements are met:

a. All emergency preparedness or first aid kits include:

    1. Naloxone rescue kits. Projects may choose a single dose nasal spray, a multi-step nasal spray, a single step injection or a multi-step injection.
    2. Instructions for how to prepare and administer naloxone, as well as immediate next steps after administration.
    3. A list of who on-site has received opioid response training, and their contact information.

b. Protocol is in place for follow-up after an opioid emergency event, including a plan for:

    1. Debriefing those affected.
    2. Immediate replacement of naloxone kit following use.
    3. Replacing expired kits.

Option 2: Opioid response training

The following requirement is met:

a. Regular occupants receive opioid emergency training in-person or virtually, covering:

    1. General information about opioid use and naloxone.
    2. Recognizing the signs of an overdose and immediate steps to take.
    3. How to safely administer naloxone and steps to take following administration.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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C15 **B** EMERGENCY RESILIENCE AND RECOVERY | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Better enable individuals and communities to maintain health and well-being, and organizations to maintain business function, during and after emergencies.

Summary: This WELL feature requires projects to create a business continuity plan, establish a re-entry plan and offer supportive resources to facilitate resilience during, and recovery after, an emergency.

Issue: Globally, the frequency, size and cost of disasters is increasing due to climate change, population growth and rapid urbanization.[1–3] In 2019, the global economic losses from disasters amounted to $232 billion, and the 2020 COVID-19 pandemic caused the largest global recession in history.[1,4] Small businesses may be particularly vulnerable as research shows that about 90% of smaller companies fail after emergencies unless they can resume business operations within five days.[5] Emergencies such as biological events or active shooters may necessitate sheltering in the workplace, while longer-term emergencies may lead to extended workplace shutdowns.[6–13] The latter can result in extensive layoffs, while employees who continue working may be forced to work in higher-risk conditions or remotely in spaces not equipped to support productivity.[9–13]

Solutions: Business continuity planning is critical to help manage business disruption, restore business operations, minimize risk to employees and mitigate financial loss when emergencies occur.[16–19] Establishing organizational remote work readiness can help operations run smoothly and support employee well-being and productivity when an emergency makes remote work imperative.[16,20] Moreover, employer-funded employee relief assistance can support both employee retention and well-being during and after emergencies.[21–23] For emergencies that require sheltering on-site, a shelter-in-place plan is crucial to supporting occupant safety.[6,8,24] Designating space for emergency public use can reduce the burden on medical facilities and help patients receive immediate care.[25,26] Re-entry plans after emergencies should consider employee needs, offer employees flexibility, assess critical infrastructure systems, communicate re-entry strategies to key stakeholders and re-evaluate existing policies, operations and protocols to support a healthy, safe and inclusive re-entry.[27–36]

Part 1 Promote Business Continuity

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Projects implement a business continuity plan (BCP) that addresses at minimum the following:[16,20]

a. Determines critical business functions, processes, supporting resources and dependencies (e.g., email, internet connectivity, third-party suppliers or service providers, interdependent departments).
b. Includes a list of the roles and responsibilities of the business continuity team and convenes the team twice annually (at minimum) to review, test and update (as needed) the plan.
c. Implements a business impact analysis to evaluate the likely effects resulting from disruption of normal business functioning due to a disaster and to identify which critical business functions should be prioritized for recovery.
d. Conducts a remote work readiness assessment, including at minimum the following:
    1. Evaluates which employees and/or positions (if any) are able to work remotely.
    2. Evaluates which employees and/or positions (if any) have the necessary support infrastructure to work productively in a remote situation.
    3. Evaluates whether organizational technology (e.g., company laptops, virtual private network (VPN)) is set up to support enterprise-wide remote work.
    4. Implements the strategies necessary to support remote work readiness as determined by the evaluation, including (as applicable) methods of communication to employees during remote work and provision for alternate work locations.
e. Outlines strategies to support short- and long-term continuity in various disasters (e.g., blizzard, pandemic), restore and maintain business operations following disruption and re-mobilize in response to recurring disasters.

> **Note:** All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

> **WELL Core Guidance:** Meet these requirements in non-leased spaces.

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Part 2 Support Emergency Resilience

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Projects implement at least one of the following:

a. Designated outdoor or indoor space is made available to emergency responders, relief organizations or other equivalent institutions at no cost for alternative use in case of emergency (e.g., shelter during a natural disaster, treatment area during a pandemic).

b. Employee assistance fund provided for emergency use by employees in at least two of the following critical scenarios:

    1. Sheltering from domestic violence or abuse.
    2. Quarantine due to infectious disease exposure.
    3. Damage to employee housing from a disaster.

c. Shelter-in-place plan for emergencies in which occupants cannot leave the project (e.g., hurricane, chemical spill) that includes the following:

    1. A shelter-in-place kit with resources to help occupants shelter in place within the project for at least 24 hours (e.g., water, food supplies, blankets, flashlights, first aid kit).[8]
    2. A pathway for occupants or groups who may be more vulnerable (e.g., older adults, people with disabilities, pregnant women, children) to confidentially identify specific needs they may have during a shelter-in-place emergency.[24]
    3. Procedures for communicating to occupants the decision to evacuate or shelter-in-place during an emergency.
    4. A commitment to incorporate shelter-in-place guidelines provided by a relevant local-, regional- or global-level emergency response agency (e.g., WHO, government emergency management agency or equivalent) into the plan, and to adhere to instructions provided by that agency during a shelter-in-place emergency.
    5. Annual (at minimum) occupant trainings on the shelter-in-place plan.

> **Note:** All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

> **WELL Core Guidance:** Meet requirement a in non-leased spaces, requirement b for direct staff and requirement c in the whole building.

Part 3 Facilitate Healthy Re-entry

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

Projects establish a plan for re-entry into the project after an emergency event, addressing at minimum the following:

a. Consultation with regular occupants prior to and just after re-entry to understand their needs and concerns related to re-entry.

b. Applicable safety, compliance and risk inspections of water, mechanical, electrical, ventilation and life safety systems, including necessary actions to restart building and facility systems after prolonged shutdown and approval or clearance for safe re-entry.

c. A list of roles for those who will be responsible for overseeing the re-entry plan. While roles and contact information should be made available to an organization's personnel, it is not necessary to include this information in the plan submitted for purposes of verifying this feature.

d. Re-evaluation and adjustment (as needed) of human resources, workplace wellness and employee support policies and amenities (e.g., use of common areas and shared spaces like wellness rooms, food provision, physical activity programs) to support a safer and healthier re-entry.

e. Policy to support phased re-entry (as needed) offering part-time options, work from home flexibility and/or flexible schedules for all employees (as feasible), particularly for parents and caregivers who may have specific dependencies (e.g., due to childcare closures or a sick family member) and vulnerable groups (e.g., people with disabilities or who may be particularly vulnerable to infectious disease).

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f. Re-evaluation and adjustment (as needed) of facilities management policies and protocols to support safer and healthier re-entry, including but not limited to:
    1. Crowd management and spacing and physical distancing of individuals.
    2. Heightened security measures (e.g., temperature screening, security personnel to monitor masking requirements).
    3. Access to personal protective equipment (PPE).
    4. Additional sanitization supplies and other cleaning or maintenance protocols.
g. Contingency planning and re-closure measures should the same hazard that forced initial closure re-occur.
h. Frequent communications through multiple methods (e.g., emails, signage, trainings) to all relevant stakeholders, including (as applicable) employees, occupants, residents, facilities management team, contractors and community members, on the re-entry plan, new or altered policies, operations and procedures, relevant local-, state-, national- or global-level re-entry guidelines and how the project will address occupant health and safety concerns.
i. Evaluation and incorporation of re-entry guidelines (as available) provided by a relevant local-, regional- or global-level emergency response agency (e.g., WHO, government emergency management agency or equivalent) into the plan, and adherence to instructions provided by that agency during re-entry.

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet requirements a-c and f-i in the whole building and meet requirements d and e for direct staff.

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C16 **B** HOUSING EQUITY | O

WELL Certification: 2 Pt | WELL Core: 2 Pt

Intent: Promote housing equity through the allocation of healthy affordable housing units.

Summary: This WELL feature requires projects to designate affordable housing units that are tenure blind, reduce housing costs for low-income tenants and offer multi-bedroom options.

Issue: Families unable to find affordable housing spend a significant share of their income on housing costs, leaving insufficient resources to cover other basic needs such as food, clothing, utilities and medical care.[1–3] Across the United States, European Union, Japan and Australia, over 60 million households are financially stretched by housing costs.[4] With lack of affordable housing access, an estimated 235 million urban families live in substandard housing, which exposes them to mold, dust, water leaks, lead-based paint, poor air quality, temperature extremes and vermin, leading to poor health outcomes like asthma, infectious disease, cardiovascular events and children's nervous system damage.[1–3 5,6] In 2016, only 3.2 million affordable housing units were available for the 10.4 million extremely low-income households in the United States; in India, there is a deficit of 11 million affordable units.[7,8] In rural England, only 8% of housing stock is affordable compared to 20% in urban areas.[9] Affordable housing shortages lead to homelessness, which increases stress, substance use and morbidity in adults and mental health issues and depression in youth.[3,6,10]

Solutions: Increasing housing affordability, quality and safety improves resident health, feelings of security and self-esteem, and increases developmental ability and nutrition levels in children.[3,6] Affordable housing access can help prevent communicable diseases, improve overall health and provide a stable and efficient platform for the delivery of food, healthcare and essential services, especially for vulnerable groups such as the elderly, children, and individuals with chronic illnesses or disabilities.[1,3,5,6,10] With rising urbanization, healthy affordable housing will be critical for community health promotion.

Part 1 Allocate Affordable Units

WELL Certification: 2 Pt | WELL Core: 2 Pt

For Dwelling Units:

The following requirements are met:

a. A percentage of units is allocated for tenants whose incomes are at or below an income limit that projects select relative to local median household income [e.g., Area Median Income (AMI)], adjusted for family size, per the table below:

Units Allocated	Income Limit Selected	Points
20% or more	0 - 50% of local median	1
40% or more	51 - 80% of local median	1
100%	0 - 80% of local median	2

b. Total annual housing costs (defined as rent and utilities) paid by affordable unit tenants are less than 30% of the income limit selected in requirement (a).

c. Housing costs are maintained for the duration of a project's WELL Certified status.

d. All affordable housing units are tenure blind.

e. In projects with 10 or more affordable housing units, at least 50% of allocated units must have two or more bedrooms and at least 10% of allocated units must have three or more bedrooms.

> **Note:** All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

> **WELL Core Guidance:** Meet these requirements in the whole building.

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C17 B RESPONSIBLE LABOR PRACTICES | O

WELL Certification: 3 Pt | WELL Core: 3 Pt

Intent: Promote organizational commitment to responsible labor practices in order to address modern slavery in the supply chain and support human rights.

Summary: This WELL feature requires projects to evaluate and disclose unfair labor practices associated with modern slavery in their operations and supply chain, specifically in the areas of construction, cleaning and catering, and to take steps to address modern slavery in the supply chain.

Issue: Modern slavery refers to the various situations in which a person is recruited, transported or compelled to work through force, fraud or coercion.[1,2] Modern slavery practices may include traditional slavery (or involuntary servitude), human trafficking, forced labor, bonded labor, sex trafficking and the worst forms of child labor.[1,2] The Global Slavery Index estimates that in 2016 there were over 40 million victims of modern slavery worldwide, including 24.9 million in forced labor.[3] Modern slavery is recognized as a violation of human rights, including a right to health, and as a global public health issue.[4–7] Research shows modern slavery has severe consequences for victim health and well-being, including high risk of physical injury, mental health issues like anxiety, depression and post-traumatic stress disorder (PTSD), exposure to infectious disease, suicide and limited access to healthcare.[4–7] Reports estimate that a majority of modern slavery victims – nearly 30 million – reside in the Asia Pacific region, where many global supply chains lead.[8–10] Of the 195 countries in the world, only 40 have investigated labor exploitation in supply chains and almost half of all countries worldwide have yet to criminalize slavery.[11,12] Industries found to be at highest risk for modern slavery include clothing, electronics and technology manufacturing, food and agriculture (including catering), and construction.[13,14] The cleaning sector is also considered high-risk given the complexity and opaque operations of the industry; in 2011, the Fair Work Ombudsman (FWO) reported that out of 315 Australian cleaning companies analysed, 37.1% were non-compliant with responsible labor practices, including underpayment of wages and lack of recordkeeping.[14,15] Businesses often do not sufficiently assess modern slavery risks in their supply chains due to the complexity of supply chains reaching across sectors and regions; for example, in 2016 only 47% of UK manufacturers had adequately identified all of the suppliers in their supply chain.[13,14]

Solutions: Businesses can play a critical role in helping to identify and prevent occurrences of modern slavery.[16] To address modern slavery in the supply chain, companies must first establish due diligence processes that comprehensively detect risks and influencing conditions.[14] The UK Modern Slavery Act of 2015 requires companies to establish and disclose a risk assessment process, anti-slavery policies and steps taken to address identified risks.[17] The Australian Modern Slavery Act of 2018 similarly requires entities to publish an annual report on actions they have taken to address modern slavery in their operations and supply chains.[18] Best practices also include ethical procurement policies, employee training on relevant policies and risk identification as well as engagement with Tier 1 suppliers and established processes for incident reporting, while "leadership" approaches include standalone modern slavery or human rights policies, deeper risk assessments into Tier 2 suppliers through Tier 6 suppliers, capability-building with suppliers, strong remediation mechanisms and slavery-specific performance metrics.[13,19] Implementing these steps also supports the achievement of U.N. Sustainable Development Goal 8: Decent Work and Economic Growth, which calls for eradicating forced labor, modern slavery, human trafficking and child labor by 2025.[20]

Part 1 Disclose Labor Practices

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

The project or organization meets the following requirements:

a. A comprehensive mapping of the project or organization's structure, operations and supply chains is conducted annually for Tier 1 suppliers in the following sectors (as applicable):[21]
    1. Construction.
    2. Cleaning.
    3. Catering.
    4. Security.
    5. Maintenance.
b. A risk assessment is conducted annually that evaluates risks in the project or organization's operations and Tier 1 suppliers (at minimum) in the above sectors for the following practices associated with modern slavery:[21,22]
    1. Worst forms of child labor.
    2. Forced labor.

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3. Traditional slavery.
4. Bonded labor.
5. Human trafficking.

c. An annual report that discloses the following information is reviewed by the executive team, Board of Directors and/or equivalent high-level stakeholders and published on the project or organization's website:[22]

1. Processes of evaluation and risk assessment.
2. Risk assessment results, including the parts of the project or organization's operations and supply chain where modern slavery risks have been identified.
3. Statement of commitment, including established goals and policies, aimed at identifying, preventing and mitigating modern slavery practices in the project or organization's operations and supply chain.

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

Part 2 Implement Responsible Labor Practices

WELL Certification: 2 Pt | WELL Core: 2 Pt

Note: Projects may only achieve this part if Part 1 is also achieved.

For All Spaces:

The project or organization implements an action plan that meets the following requirements:[21,22]

a. Establishes annual targets for the prevention and/or mitigation of modern slavery in their operations and supply chain in the following areas (as applicable):

1. Construction.
2. Cleaning.
3. Catering.
4. Security.
5. Maintenance.

b. Addresses implementation of the following strategies to meet established targets:[21,22]

1. Anti-slavery and -human trafficking policies.
2. Responsible procurement policy.
3. Annual trainings, mandatory for employees involved in procurement and made available to all employees, educating about the consequences of modern slavery and the project or organization's policies and steps for preventing, identifying and reporting observed or potential incidences of modern slavery practices.
4. Reporting protocol that allows employees and Tier 1 suppliers to anonymously report modern slavery risks and practices.
5. Process for review and remediation of any identified modern slavery practices to prevent and mitigate future incidents.
6. Process for consultation and revision of contracts, including establishing supplier obligations to address modern slavery, with any suppliers that have been identified as high risk for modern slavery practices.

c. Establishes annual targets in requirement a and implements strategies in requirement b per the table below.

Supplier Level	Points
Tier 1	1
Tiers 1 & 2+	2

d. Describes how the project or organization assesses the effectiveness of the implemented strategies and updates targets or strategies accordingly.[21]

Note: All projects are required to submit the WELL beta feature implementation feedback form for every WELL beta feature

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pursued during documentation review. More information on WELL v2 beta features can be found at https://resources.wellcertified.com/articles/introducing-well-beta-features/.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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C18 **B** SUPPORT FOR VICTIMS OF DOMESTIC VIOLENCE | O

WELL Certification: 2 Pt | WELL Core: 1 Pt

Intent: Increase availability and access to support services, resources and care for victims of domestic violence.

Summary: This WELL feature requires projects to implement a policy that supports victims of domestic violence and to educate employees on the domestic violence resources that are made available by the project.

Issue: Domestic violence is the most common form of gender-based violence across the world.[1] Women are disproportionately affected, with violence most commonly perpetrated by men against women.[2] The World Health Organization estimates that around 30% of women who have been in a relationship experience some form of physical and/or sexual violence perpetrated by an intimate partner.[1] The impact of this violence is severe: globally, it is estimated that up to 38% of murders of women are committed by a male intimate partner.[1] Beyond fatal outcomes, domestic violence can lead to a range of adverse health consequences, including higher risk of injuries, sexually transmitted infections (including HIV), depression, anxiety and substance misuse.[1] Moreover, the social and economic consequences of domestic violence are significant, including loss of wages and inability to work, as well as increased risk of homelessness.[1,3,4] The deep impacts of domestic violence are not just felt at home, but also carried into the workplace: research shows that at work, victims are more likely to have reduced performance and productivity and increased absenteeism and turnover.[5,6]

Solutions: Workplaces can play a role in responding to domestic violence through policies designed to protect and support victims.[5–8] It is also important for workplaces to develop supportive and non-judgemental environments in which employees feel comfortable and safe disclosing any violent situation they may be facing.[7] Employers can help protect victims through various measures, such as confidential protocols for reporting, reviewing and responding to an incident, ability to change workplace location and start and finish times, increased security for workplace access, call screening procedures and specific emergency response procedures.[5,7,8] Countries such as New Zealand, the Philippines and parts of Canada have introduced legislation that promotes best practices among employers to support victims of domestic violence, including paid time off for victims and financial resources to support relocation.[9–11] By providing policies and resources to support victims and educate employees, employers may play a role in helping to reduce the physical and mental impacts of domestic violence.[7,12]

Part 1 Support Victims of Domestic Violence

WELL Certification: 2 Pt | WELL Core: 1 Pt

For All Spaces:

Option 1: Domestic violence policy

The project maintains a policy that meets the following requirements:

a. Provides at least ten days of leave, paid at the employee's full salary or wages, during any 12-month period for use by employees who are victims of domestic violence. Leave must meet the following requirements:[5,7,8,12]
    1. Distinct from paid time off, sick leave and family leave.
    2. If requiring incident disclosure for employees to qualify, takes steps to protect employee privacy and encourage reporting.
    3. Does not require a minimum qualifying period of employment before which employees can take leave.
b. Outlines a clear protocol for incident reporting and response that includes the following:
    1. Process for employees to confidentially report incidents of domestic violence, including one or more designated contacts that employees can approach confidentially for support when reporting incidents.[8]
    2. Process of incident response that includes consultation with the victim, prioritizes victim privacy and safety and ensures incident disclosure will not adversely impact victim employment status.
c. Offers at least two of the following to protect employees who report incidents of domestic violence:
    1. Flexible working arrangements (e.g., adjusted work hours or workplace relocation).[5,7,8,12]
    2. Heightened security measures (e.g., call screenings, controlled workplace access, duress alarms, changes to contact information, worksite security escorts).[2,5,8]
    3. Referrals to local support organizations, community groups and crisis lines, including those available through Employee Assistance Programs (EAPs).[8,12]

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4. Temporary accommodations or financial support to cover the costs of temporary accommodations.[5]

d. Policy and related resources provided by the organization are easily and confidentially available (e.g., via a health portal, annual communications or employee website) and reviewed and adjusted (as needed) annually with opportunities for anonymous feedback from employees (e.g., surveys, feedback portal). Policy must be made available to all new employees during onboarding.[2,5]

Option 2: Employee education

The project offers in-person or virtual trainings (e.g., workshops, seminars) that meet the following requirements:

a. Are required of all managers and made available to all employees.[2,8]
b. Educate employees on the following topics:[7,12]
    1. The project's domestic violence policy and resources.
    2. Signs and symptoms that a colleague or direct report may be a victim of domestic violence.
    3. How to appropriately respond if a colleague or direct report discloses that they or another employee is experiencing domestic violence.

WELL Core Guidance: Meet these requirements for direct staff.

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APPENDIX C1:

The following topics must be covered by the custom survey selected for Option 2: Custom Survey in Feature C04 Part 1:

1. General building and occupancy information, including job type or time spent in the building.
2. Indoor environmental quality of air, water, light, sound and thermal comfort.
3. Ergonomics, layout and aesthetics.
4. Maintenance and cleanliness.
5. Amenities: access to nature, views and nourishment options.
6. Satisfaction with how policies and amenities impact and support healthy behaviors (e.g., physical activity, healthy eating).
7. Access to and engagement with workplace wellness initiatives or offerings (e.g., physical activity incentive programs, health benefits and services).
8. Employee support policies (e.g., paid parental and family leave, flexible working arrangements).
9. Productivity and engagement though measures of hours worked or motivation.
10. Self-rated health and well-being.
11. Standard sociodemographic information (age and gender at minimum).

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APPENDIX C2:

Approved additional topics to add to the pre-approved survey in Part 1: Select Enhanced Survey in Feature C05: Enhanced Occupant Survey.

Category	Topic
Healthy Behaviors:	Mode of transportation to and from work and distance or time traveled
	Hydration
	Sleep satisfaction, quality and/or quantity
	Physical activity
	Alcohol consumption
	Healthy eating
	Ability to take restorative breaks
	Smoking habits
Enhanced Health and Well-being:	Sick building syndrome
	Mental health
	Social, cultural or economic well-being
	Musculoskeletal issues (e.g., back, neck pain)
	Health literacy
Performance and Resilience:	Assessment of individual work style, patterns, processes, space utilization and ability to focus or collaborate
	Workplace performance
	Engagement
	Workload, stress, burnout and/or employee resilience
	Creative thinking
Policies and Culture:	Safety and security, including for diverse population groups (e.g., cultural, ethnic, gender, ability, age)
	Emergency preparedness (e.g., pandemic, fire, natural disaster)
	Workplace wellness programs and perceived effectiveness
	Leadership investment in employee health and perceived effectiveness
	Social equity programs and perceived effectiveness
Other:	Comparison to previous space
	Values related to, level of access to and experience of nature
	Feedback on specific design interventions
	Healthy behaviors, ergonomics, mental health and productivity for remote workers
	Additional sociodemographic information (e.g., education, ethnicity, income)

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APPENDIX C3:

The following supplies must be included in first aid kits per the requirements of Feature C14 Emergency Resources:[1]

Bandages

- Adhesive bandage
- Adhesive tape
- Burn dressing (gel soaked)
- CPR breathing barrier
- Eye covering (with means of attachment)
- Roller bandage
- Sterile pad
- Trauma pad
- Triangular bandage (e.g., for a sling)

Lotions, oils and other fluids

- Antibiotic application
- Antiseptic
- Burn treatment
- Eye wash
- Hand sanitizer

First aid tools

- Cold pack
- First aid guide
- Medical exam gloves
- Scissors

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1. American National Standards Institute (ANSI), International Safety Equipment Association (ISEA). *First Aid Regulations.*; 2015.

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INNOVATION

Innovation features pave the way for projects to develop unique strategies for creating healthier environments.

Innovation features address a novel concept or strategy not already included in WELL features.

Projects should use Feature I01: Innovate WELL to submit innovation proposals. This feature provides guidelines on the requirements that must be met in order for an innovation proposal to be considered for approval. Other Innovation features represent strategies pre-approved by IWBI.

Projects may receive up to 10 points in Innovation.

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I01 INNOVATE WELL | O

WELL Certification: 10 Pt | WELL Core: 10 Pt

Intent: To promote the continuous evolution of WELL, by encouraging projects to propose a new intervention that addresses health and well-being in a novel way.

Summary: As the scientific understanding of health continues to evolve, so too does the ability to address the complex issue of promoting health and well-being through building design and operations. WELL Innovation features embrace novel approaches to promoting the creation of healthier spaces that go above and beyond features in WELL v2.

Part 1 Propose Innovations

WELL Certification: 10 Pt | WELL Core: 10 Pt

For All Spaces:

The project submits a proposal that meets the following requirements:

a. Positively impacts project occupants by supporting health and well-being in a novel way that is not covered in WELL v2.
b. Substantiated by existing scientific, medical and/or industry research.
c. Consistent with applicable laws and regulations and leading practices in building design and operations.

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I02 WELL ACCREDITED PROFESSIONAL (WELL AP) | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: To recognize projects that engage a WELL AP to support the WELL certification process.

Summary: The WELL Accredited Professional (WELL AP) credential denotes expertise in WELL and a commitment to advancing human health and well-being in buildings and communities. The presence of a WELL AP on a project team can benefit project planning and achievement efforts by streamlining the WELL application and certification process.

Part 1 Achieve WELL AP

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

At least one member of the project team:

a. Has achieved the WELL Accredited Professional credential.
b. Maintains accreditation until project's initial certification is achieved.

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I03 EXPERIENCE WELL CERTIFICATION | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: To promote on-going education about WELL, by encouraging projects to offer building tours and educational components highlighting WELL features pursued for certification.

Summary: Increasing awareness about health and well-being solutions in buildings is a central part of WELL's mission. Education on WELL is best showcased by inviting individuals into the physical project space and highlighting the WELL features pursued. To receive credit for this Innovation, projects must provide tours of the space, as well as implement education strategies that enable building occupants and visitors to learn more about the impact of built spaces on their health and well-being.

Part 1 Offer WELL Educational Tours

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

The project provides free, public tours of the WELL Certified space. Tours are offered on a pre-determined schedule or upon request and meet the following requirements:

a. Offered at least six times per year.
b. Attended by at least 50 people per year.
c. Listed in the public directory of tours for WELL Certified spaces.
d. Include at least one destination per WELL concept.
e. Advertised through at least one publicly accessible channel (e.g., project website, signage, social media).

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I04 GATEWAYS TO WELLNESS | O

WELL Certification: 1 Pt | WELL Core: 1 Pt

Intent: To recognize projects that have taken meaningful steps toward deeper commitments to health and well-being.

Summary: Organizations build a culture of health in different ways. For some, it starts at the top, with a commitment from leadership to enact change. For others, it is borne out of grassroots initiatives, gaining momentum from the ground up. While every organization travels a different path, there are a variety of third-party programs and initiatives on offer to support an organization's journey. IWBI awards an Innovation point to projects that participate in wellness programs that act as gateways to deeper commitments.

Part 1 Complete Health and Wellness Programs

WELL Certification: 1 Pt | WELL Core: 1 Pt

For All Spaces:

The following requirement is met:

a. Within the last three years, the project has completed an independent health and wellness program, or an initiative approved by IWBI and listed on IWBI's website (Reference).

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I05 GREEN BUILDING RATING SYSTEMS | O

WELL Certification: 5 Pt | WELL Core: 5 Pt

Intent: To recognize projects that have achieved certification under leading green building rating systems.

Summary: WELL aligns with leading green building rating systems and recognizes projects that balance a commitment to environmental sustainability with a commitment to human health. Policies that reduce the environmental impact of buildings contribute to the advancement of human health at the building and community scale. The environment itself can act as a mechanism to promote and reinforce health by providing fresh air, clean water, affordable and accessible food and green spaces for physical activity and social connection. By balancing sustainability and human health considerations, both people and planet can thrive.

Part 1 Achieve Green Building Certification

WELL Certification: 5 Pt | WELL Core: 5 Pt

For All Spaces:

The following requirement is met:

a. The project is certified in a green building rating system approved by IWBI and listed on IWBI's website (Reference).

> **Note:** Projects receive the full five points in Innovation for pursuing a green building rating system. Projects cannot receive more than five points for pursuing additional green building rating programs.

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APPENDIX 1: VERIFICATION METHODS:

Features of the WELL Building Standard™ (WELL) describe which design, policy or environmental conditions must be present in a WELL Certified space. In other words, WELL features describe the characteristics or quality of the spaces in which we spend our time. Verification methods are the means through which projects document compliance with WELL requirements. This is through annotated documents submitted by the project team or on-site verification by WELL Performance Testing Agents.

Please note that verification methods or submittal requirements may vary based on the pathways chosen by the project.

Verification Types

There are two main categories of verification types: documentation and on-site verification. All documentation is submitted through WELL Online and evaluated by Green Business Certification Inc. (GBCI) to determine compliance with WELL feature requirements. Performance Verification entails a site visit by a WELL Performance Testing Agent who conducts performance tests. The data collected from these tests is reviewed by GBCI to determine whether a feature has been achieved.

Verification types fall into one of the following categories:

- Documentation:
    - Letter of Assurance
    - Technical Document
    - Professional Narrative
    - Policies and Operations Schedule
    - Ongoing Report
- On-site verification:
    - On-site Measurement
    - On-site Photographs

Documentation

Letter of Assurance

Letters of Assurance affirm the project implemented the requirements as required during design, construction or operations. Templates are available for download in the digital standard. A Letter of Assurance designated to a particular member of the project team can be reassigned to a different member of the project team with the appropriate expertise.

- Contractor: A letter signed by the project contractor that confirms the project is constructed to meet the WELL requirements pursued.
- Designer: A letter signed by the project architect, lighting designer or acoustic consultant that confirms the project is designed to meet the WELL requirements pursued.
- Engineer: A letter signed by the project engineer that confirms the project is designed to meet the WELL requirements pursued.
- Owner: A letter signed by the project owner that confirms the project is constructed to meet the WELL requirements pursued.

Letters of Assurance are always accompanied by a second verification type, or a verification in another feature.

Technical Document

Technical Documents include several documentation types and are usually submitted during documentation review.

- Architectural Drawings: Technical drawings of a building or space for the floor plan view
- Mechanical Drawings: Technical drawings that show information about HVAC systems
- Modeling Reports: The reports from a digital simulation software that demonstrates compliance with feature requirements.

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- Product Specification Sheets: A document that outlines the technical information about an installed product which may include materials, functionality or environmental performance metrics (e.g., MSDS, cut sheets).
- Maps: A document that showcases the topographical features of an area, including proximity of the WELL project to amenities specified in the requirements.
- Remediation Reports: A report documenting the results of risk reduction activities carried out once a hazard is identified for a project. Remediation reports and associated activities are typically carried out and prepared by trained professionals.
- Other: A list of specific data that the project must provide to document compliance.

Professional Narrative

A professional narrative consists of a statement or summary written by a project team that describes how WELL requirements have been met in a space.

Policy and/or Operations Schedule

Policy documents and operation schedules communicate information to the occupants or staff in the space, unlike documents such as Letters of Assurance or Professional Narratives which are generated solely for the purposes of WELL Certification.

- Policy Document: A document that describes an enacted policy, program or initiative. Policies and laws enacted by a government that apply to a project may be submitted.
- Operations Schedule: A document outlining a schedule or cadence of events or activities that relate to WELL requirements.

On-going Reports

Certain WELL features require documentation to be submitted annually following WELL Certification. Reports are submitted to WELL Online per the scheduled listed in the requirements and are not submitted for initial WELL Certification.

- Data Report: The data output for WELL requirements that require ongoing monitoring or reporting. This may include survey data.
- Maintenance Report: A record demonstrating that ongoing maintenance activities (e.g., inspections) have been met.

Performance Verification

On-Site Measurements

On-site measurements are conducted to gather performance data and document implementation of WELL features directly from the project site. The verification tab outlines the performance testing protocol for each feature that requires on-site measurements. Data is submitted to WELL Online for performance review by GBCI.

On-Site Photographs

Photo documentation taken on-site by a WELL Performance Testing Agent and submitted to GBCI. Participants in the WELL Portfolio program may instead submit photographs taken by a member of the project team.

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