

WELL<sup>®</sup>

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BUILDING

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STANDARD



## Executive Summary



# INTRODUCTION

The WELL Building Standard is a performance-focused system for measuring, certifying, and monitoring features of the built environment that impact human health and wellbeing including air, water, nourishment, light, fitness, comfort, and mind. It is currently in pilot and available for use for new construction and major renovations in the commercial, residential multifamily, and institutional market sectors.

## DEVELOPMENT

The WELL Building Standard was developed through seven years of consultation with leading medical scientists and building industry practitioners, and is grounded in medical research that demonstrates the connection between buildings – where we spend more than 90 percent of our time – and health and wellness impacts on occupants. WELL sets performance requirements in seven categories: air, water, nourishment, light, fitness, comfort, and mind.

## ADMINISTRATION

The International WELL Building Institute (IWBI) administers the WELL Building Standard. IWBI is a public benefit corporation (B-Corp) that was created by Delos, a Wellness Real Estate company, to administer the WELL Building Standard to fulfill a Clinton Global Initiative commitment to make the standard available globally. IWBI will administer a transparent peer review of the WELL Building Standard in Summer 2014 prior to the full release of the program.

## ASSESSMENT AND CERTIFICATION

The IWBI also administers certification under the WELL Building Standard, in collaboration with the Green Building Certification Institute (GBCI), the same organization that certifies LEED green buildings, which serves as a third-party auditor for the IWBI. On-site post-occupancy audits of WELL Building features including air and water quality are required for WELL certification, and re-auditing every three years is required to maintain certification.

## WELL AND GREEN BUILDINGS

The WELL Building Standard works in alignment with the LEED Green Building Rating System, the Living Building Challenge, and other leading global sustainable building programs. WELL enables green building practitioners to integrate human health and wellbeing with sustainability, creating buildings that optimize occupant as well as environmental impacts.

Current WELL pilot projects include the William Jefferson Clinton Children's Center in Port-au-Prince, Haiti. Named in honor of President Clinton, the children's center and orphanage will be LEED Platinum and WELL certified. Another recent example of the alignment between WELL and LEED includes CBRE Group Inc.'s new Global Corporate Headquarters in downtown Los Angeles. Unveiled in November 2013, CBRE's new headquarters is the world's first commercial office space to be both Gold LEED and WELL certified.

# AIR

Good air quality is imperative for a healthy environment. Stationary adults typically inhale 6 to 10 liters of air every minute, and a total of approximately 15 cubic meters of air pass through the lungs of a moderately active adult daily (1).

Minute quantities of gaseous pollutants and particulates, which can cause serious health problems, are present in the air from both natural and anthropogenic sources. Poor air quality is responsible for 50,000 premature deaths annually in the United States and is estimated to result in \$150 billion of illness-related economic costs (2). Of this, \$93 billion is due to lost productivity from the headaches, fatigue, and irritation typical of Sick Building Syndrome(3).

The WELL Building Standard® introduces a protocol to reduce airborne contaminants generated by building materials and human activity, as well as a proven practice to expel toxins and particulates in the air through ventilation and filtration (4).



## INTENT

The objective of the Air Concept of the WELL Building Standard® is to achieve medically validated performance-based thresholds for healthy indoor air quality.

## HEALTH IMPACT

Of concern are multiple health related issues, which may include:

- » Upper respiratory health
- » Allergies and asthma
- » Chronic fatigue
- » Eye irritations
- » Headaches and focus issues
- » Endocarditis
- » Multiple chemical sensitivities
- » Odor control

## OPTIMAL AIR CONDITION

A WELL Certified™ building must meet performance threshold and introduce select solutions, protocols and technologies:

- » Effective air cleaning and treatment practices, including particle filters, UV sanitation, and activated carbon air filters
- » Ideal air change rates and air distribution
- » Continual air quality measurement tied to air changes with feedback to the user
- » Minimization of source chemicals or pathogens in furniture, cleaning products, or other indoor uses
- » Sound design practices to avoid trapping contaminants or creating indoor air problems
- » Construction protocol to protect ducts and indoor air quality during construction



# WATER



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Water is an essential mechanism of the human body—making up more than two thirds of human-body weight. All the cell and organ functions of our body depend on water to function. Water serves as a lubricant in digestion and almost all other body processes, regulates body temperature, removes harmful toxins and transports valuable nutrients to the body.

The WELL Building Standard® makes high quality water easily accessible, as dehydration is public health concern in the United States and around the world. The average person needs to consume approximately 2 liters of water each day (5). Proper hydration, with a replacement of essential electrolytes and minerals, is essential to productivity, sustaining energy levels, reducing fatigue and keeping a healthy body free of toxins (6).

Municipal regulatory entities introduce thresholds of performance for water quality. However, these standards are not always as stringent as medical research advocates. For instance, in New York City, byproducts formed by chlorination are near the federal limit (7). Around the country, rising levels of prescription drugs are now being found in municipal water supplies with potentially deleterious impacts on human health (8). In addition, because requirements vary from state to state, not all parts of the country or world have the same quality requirements. For example, the Las Vegas sodium and sulfate levels in water would fail New York State standards (9).



## INTENT

The objective of the Water Concept of the WELL Building Standard® is to implement design, technology, and treatment strategies in order to achieve optimal water quality for all internal water uses.

## HEALTH IMPACT

Of concern are multiple health related issues, which may include:

- » Neurophysiological health
- » Gastrointestinal health
- » Blood pressure
- » Colorectal health
- » Cosmetic health
- » Neurologic and cognitive health
- » Cardiovascular health
- » Endocrine health

## OPTIMAL WATER CONDITION

A WELL Certified™ building must meet performance threshold and introduce select solutions, protocols and technologies:

- » Removal of potential pathogens, including bacteria, protozoa, and viruses
- » Removal of sediment and heavy metals
- » Removal of residual chlorine and other disinfectants
- » Removal of prescription medications, disinfectant byproducts, and other organic contaminants
- » Optimal placement and accessibility to increase intake and encourage proper hydration
- » Good water conservation practices

# NOURISHMENT

The majority of Americans have a high-calorie diet and take in an abundance of unhealthy fats and sugars that gradually weaken immune function, lead to excessive weight gain, and cause long-term health complications. The WELL Building Standard® sets protocols to reduce the availability of unhealthy foods within the built environment, to align menu and ingredients with medically validated dietary guidelines, to promote awareness, and to introduce appliances and food preparation techniques to maximize nutrient and antioxidant availability.

The ease of accessibility to healthy food impacts human dietary choices and health—Studies demonstrate neighborhood residents with better access to supermarkets and limited access to convenience stores tend to have healthier diets and reduced risk for obesity (10). The WELL Building Standard® promotes the availability of healthy food in the areas surrounding the building in order to create a healthier lifestyle for occupants.



## INTENT

The objective of the Nourishment Concept of the WELL Building Standard® is to implement strategies to encourage healthy eating habits for building inhabitants.

## HEALTH IMPACT

Of concern are multiple health related issues, which may include:

- » Neurophysiological health
- » Heart attack risk factor
- » Cancer risk
- » Food poisoning
- » Immune system support
- » Healthy body mass index

## OPTIMAL NOURISHMENT CONDITION

A WELL Certified™ building must meet performance threshold and introduce select solutions, protocols and technologies:

- » Ergonomically designed kitchen/pantry spaces that encourage optimal nutrition intake with herbariums
- » Minimal surface contaminants/bioloading
- » Readily accessible fresh phytochemicals
- » Healthy eating habits
- » Optimal placement and accessibility to increase intake and encourage proper hydration
- » Medication and supplement integrity



# LIGHT

Light impacts the body's circadian rhythm, a biological process that oscillates around a 24-hour cycle, which is adjusted to the local environment by external cues, the most important of which is daylight. The human body uses light to inform various biological processes throughout the day, and because artificial light in the interior environment is static—does not change in wavelength or intensity from dawn to dusk—the body's circadian system receives reduced cues.

Further disrupting circadian alignment, high levels of light at night signal to the body to stop production of melatonin, the sleep hormone (11). Low production of melatonin reduces quality of sleep (12) and increases the risk of developing cancer (13) and obesity (14).

Lack of exposure to natural light has a deleterious effect on the quality of sleep, level of alertness, emotional state and overall health and wellbeing. The WELL Building Standard® introduces protocols to emulate lighting in the natural environment to help the body maintain circadian alignment, to provide the ideal lighting levels for various tasks to reduce eye-strain and glare, to increase alertness, to improve quality of sleep, to decrease Seasonal Affective Disorder, and to promote Vitamin D synthesis.



## INTENT

The objective of the Light Concept of the WELL Building Standard® is to provide room illumination that minimizes disruption to the body's circadian rhythm and provides appropriate illumination for all tasks.

## HEALTH IMPACT

Of concern are multiple health related issues, which may include:

- » Seasonal Affective Disorder (SAD)
- » Serotonin regulation
- » Circadian rhythm
- » Melatonin management
- » Carbohydrate digestion
- » Antioxidant effects of melatonin
- » Healthy eye development
- » Age related macular degeneration
- » Chronotype
- » Delayed Sleep Phase Syndrome (DSPS)
- » Remediation of jet lag
- » Healthy sleep patterns
- » Vitamin D

## OPTIMAL LIGHT CONDITION

A WELL Certified™ building must meet performance threshold and introduce select solutions, protocols and technologies:

- » Circadian Lighting Controls to adjust the color temperature and intensity over the course of the day to help with sleep, alertness and digestion
- » Adequate daylight during daylight hours and blackout shades at night to optimally manage outdoor sources of light
- » Gradually brightening lights in the morning to act as a dawn simulator
- » High-intensity light to help awaken and increase morning alertness, removing melatonin levels for optimal daytime energy
- » Great visual acuity to improve work performance and reduce eye strain
- » Ultraviolet light to allow the body to generate Vitamin D in settings that avoid risk of eye and skin damage

# FITNESS



Physical activity is one of the main pillars of health. Exercise improves strength, stamina and flexibility, improves cardiovascular function, promotes nerve cell growth, helps maintain a healthy body weight, improves long-term health, and has profound stress reduction and antidepressant effects. Nevertheless, inactivity is now one of the biggest threats to public health, directly attributable to 9.4% of all deaths worldwide, or 3.5 million people every year (15).

The WELL Building Standard® promotes physical activity, awareness, accessibility and urban connectivity through active design and technology. Consistently, people cite lack of time as the top reason given for not exercising. To address this, the WELL Building Standard® introduces elements in the built environment that make it easier to seamlessly integrate physical activity into daily life. By providing access to multiple fitness opportunities, and establishing high-intensity workouts as a foundational pillar of general wellbeing, the WELL Building Standard® supports and promotes an active lifestyle in all certified spaces.



## INTENT

The objective of the Fitness Concept of the WELL Building Standard® is to provide building occupants with numerous opportunities for physical activity.

## HEALTH IMPACT

Of concern are multiple health related issues, which may include:

- » Heart health
- » Hypertensive therapy
- » Triglyceride maintenance
- » Stress reduction
- » Mood maintenance
- » Alleviation of depressive symptoms
- » Weight management
- » Anti-aging
- » Fibromyalgia management
- » Improved bone mineral density
- » Improved muscle strength
- » Prevention of musculoskeletal disorders
- » Muscle health
- » Posture support
- » LDL cholesterol management
- » Mobility

## OPTIMAL FITNESS CONDITION

A WELL Certified™ building must meet performance threshold and introduce select solutions, protocols and technologies:

- » Enough dedicated space to fit a range of exercise machines and room for stationary aerobics or yoga
- » Location next to a bicycle path or public park, enabling cardio activity
- » Location near other fitness amenities in the community
- » Attractive stairs and design to encourage walking instead of using an elevator
- » Where applicable, access to hydrotherapy facilities for people recovering from injuries or with muscle and joint pain
- » Specific fitness programs with feedback for each individual in the building



# COMFORT



A variety of environmental factors are tied to the human experience of comfort within the built environment. Comfort not only impacts our ability to feel a sense of relaxation and peace of mind but also our ability to concentrate and be productive. The Comfort Concept of the WELL Building Standard® takes a holistic approach to address the different factors at work in the experience of human comfort—ergonomics, acoustics, electromagnetic fields, hygiene, temperature control and air flow.

A comfortable interior environment creates conditions that minimize stress and distraction. The prevalence of uncomfortable and disruptive environments is evident in that an estimated one third of all lost-workday injuries and illnesses are produced by repetitive, cramped, uncomfortable posture (16). The WELL Building Standard® introduces best practices for good design, performance measures and select features and technologies, which protect occupants from disruptive levels of environmental stressors.



## INTENT

The objective of the Comfort Concept of the WELL Building Standard® is to create an environment that enables occupants to experience comfort, both physically and mentally.

## HEALTH IMPACT

Of concern are multiple health related issues, which may include:

- » Healthy heart rate management
- » Anxiety/tension reduction
- » Neurophysiological function
- » Healthy immune function
- » Restful sleep
- » Healthy hearing
- » Lower back support
- » Reduced point pressures under foot
- » Fatigue
- » Productivity
- » Muscle pain reduction
- » Anti-carcinogenic
- » Healthy neurocognitive function

## OPTIMAL COMFORT CONDITION

A WELL Certified™ building must meet performance threshold and introduce select solutions, protocols and technologies:

- » Noise protection, which includes walls, doors and flooring that screen out external noise and reduce water and appliance sound and vibration
- » EMF-protected design, which includes bundling wires and shielding them to deflect electromagnetic fields
- » Anti-microbial surface protection that reduces bacteria, viruses and pathogens and minimizes the spread of germs
- » Floors built to precise depth and resilience to provide maximum heel support
- » Where available, spa utilities like sauna and hydrotherapy
- » Great workplace ergonomics design

# MIND



Improved access to information about our bodies and our surroundings through devices, knowledge and technology helps to keep us informed and engaged in our health by making us directly aware of the impact of our decisions (17). The WELL Building Standard® introduces technologies that assist both users and their health practitioners in monitoring and improving health and wellness.

The WELL Building Standard® introduces the demonstrated concept of biophilia, the idea that there is an instinctive bond between humans and nature, and that this natural affiliation enables the human mind to be more relaxed and calm in the presence of nature. By incorporating elements of the natural world into the built environment, the WELL Building Standard® promotes the creation of spaces that quiet the mind and help to reduce long-term stress (18).



## INTENT

The objective of the Mind Concept of the WELL Building Standard® is to implement design, technology, and treatment strategies in order to provide a built environment in which mental and emotional wellbeing is enriched.

## HEALTH IMPACT

Of concern are multiple health related issues, which may include:

- » High blood pressure management
- » Heart-rate variability management
- » Chronic back pain
- » Healthy immune function
- » Headaches
- » Migraines
- » Improved bowel function

## OPTIMAL MIND CONDITION

A WELL Certified™ building must meet performance threshold and introduce select solutions, protocols and technologies:

- » Positive practices and habits
- » Informed decisions with regard to health
- » Health and lifestyle monitoring/management
- » Stress management
- » Mood and emotional balance
- » Increased knowledge of wellness causes and strategies
- » Architecture highlighting plants and natural light
- » Relaxation Support



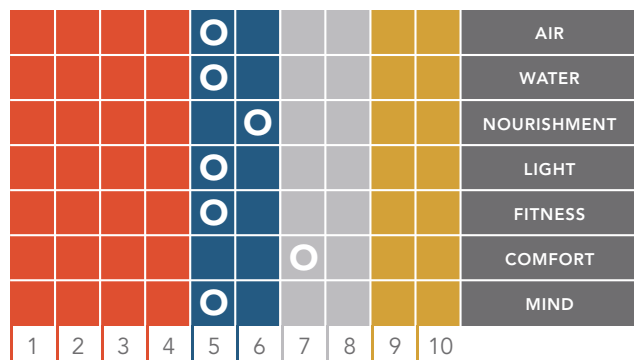
# WELL CERTIFICATION™

The WELL Certification™ program is a comprehensive review process through which owners and tenants of eligible real estate projects may seek official recognition of achievement of the WELL Building Standard®. WELL Certification™ is based on performance and requires a passing score in each of the Seven Concept categories of the WELL Building Standard®. The certification process, which includes the submission of project documentation and an on-site audit, is administered by the International WELL Building Institute (IWBI). The IWBI awards certification at one of three levels: Blue, Silver or Gold. The level ultimately awarded is determined by successful compliance with features in three categories — Precondition, Treatment and Optimization.



## THE WELL VITAL SIGNS SCORECARD

The WELL Vital Signs Scorecard was created to demonstrate an environment's compliance with the WELL Building Standard® across each of the Seven Concepts. The WELL Building Standard® requires that in order for an environment to be WELL Certified™, all Preconditions across each of the Seven Concepts be met. This approach prevents health from being quickly undermined by “keystone hazards”— a hazard within a building that can almost single-handedly undermine our health.



Pictured is a representative scorecard for a hypothetical project that has achieved WELL Certification™, with various levels of compliance in each Concept.

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